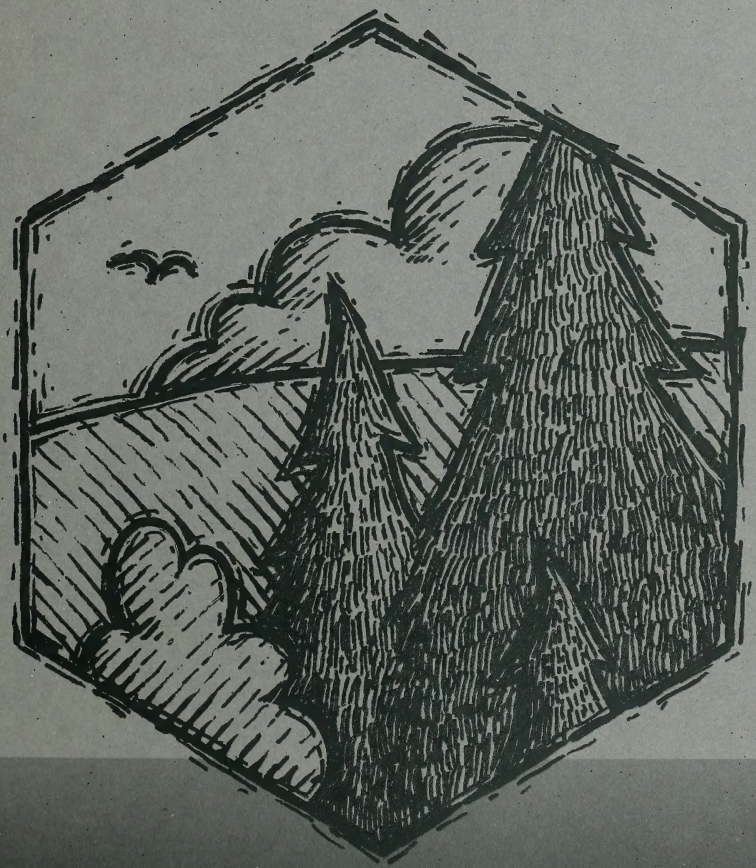
FORT ASSINIBOINE SANDHILLS WILDLAND

PROVINCIAL PARK

Management Plan



Alberta
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Natural Resources Service

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April 1999

Approval Statement

The Fort Assiniboine Sandhills Wildland Park Management Plan is the official policy of Environmental Protection, Natural Resources Service.

The plan is consistent with the provisions of the Provincial Park Act and Regulations and with provincial policies, priorities and direction.

M. W. Barrett

Date March 19, 1999

Morley Barrett
Assistant Deputy Minister
Natural Resources Service
Alberta Environmental Protection

The plan is a commitment by the Northern East Slopes Region to the protection and management of resources in Fort Assiniboine Sandhills Wildland Park and the provision of recreation opportunities within it.

Date Feb 22, 1999

Jim Skrenek, Regional Director
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Date Feb 17, 1999

Kyle Clifford, District Manager
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Date April 16, 1999

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The team responsible for preparation of the management plan included Kyle Clifford, Ken Kroetsch and Elaine Nepstad, with help from many others. Jim Black, Northern Environments Landscape Architects LTD., prepared the Trail and Facilities Map.

Thank you to the many people who participated in the planning process, particularly those local people who through dedication and persistence have achieved protection for the Fort Assiniboine Sandhills Wildland Park.

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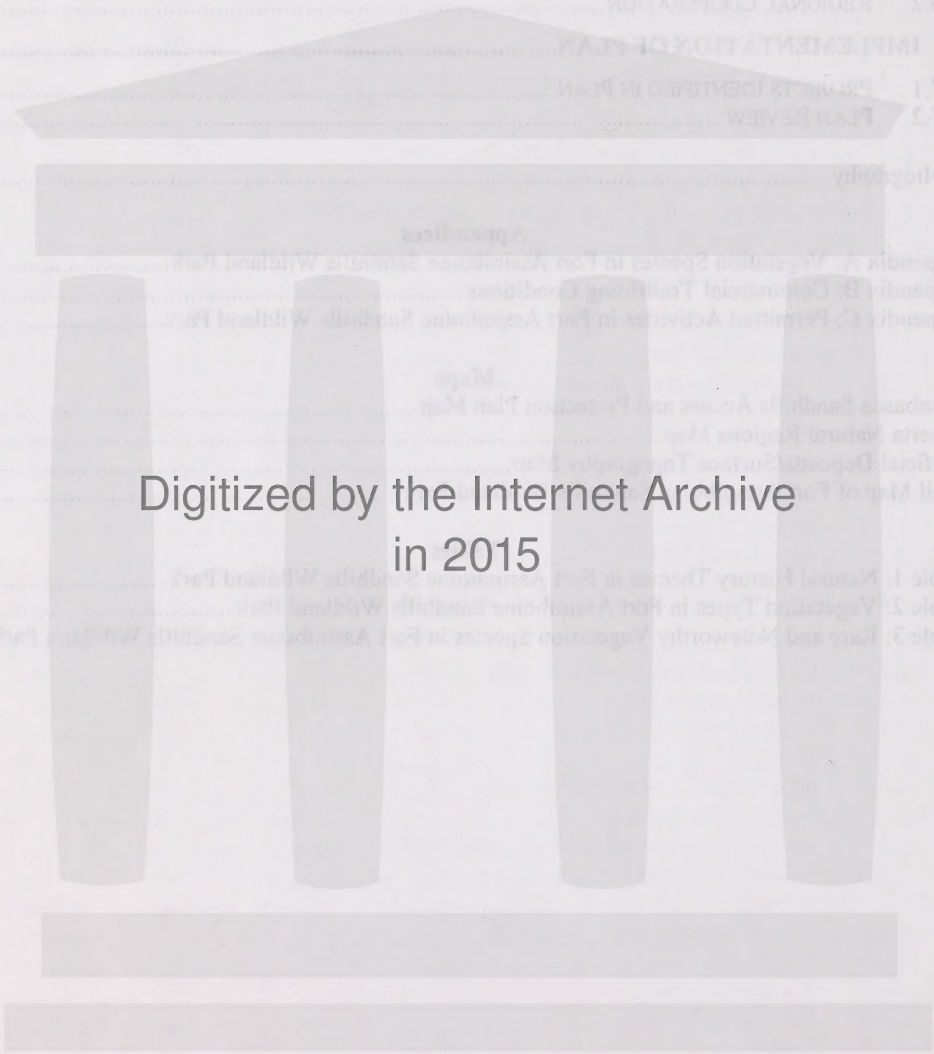


1.0 Introduction

Fort Assiniboine Sandhills Wildland Park covers about 66 square kilometers along the north shore of the Athabasca River northeast of Fort Assiniboine. It includes Pemmican Island and other islands in the Athabasca River. It was designated a **wildland park** in 1997, instead of a provincial park, to reflect the backcountry use and low level of development intended for the park.

1.1 Significant Features of Fort Assiniboine Sandhills Wildland Park

The eastern two-thirds of the park is covered by ***sand dunes*** that are part of a larger dune field extending northeast along the Athabasca River. The dune field has stabilized in a transitional state between transverse and parabolic dunes[1] (David 1977). The dunes themselves are varied, from transverse to parabolic, sinuous, and unoriented (Timoney and Robinson 1997).

The park contains a ***high diversity of vegetation types and plant species***- 436 vascular and non-vascular plants (Timoney and Robinson 1997). Twenty of these species are classified as provincially rare.

Old growth mixedwood forests in the Athabasca River valley and on some upland areas are 160+ years old. They harbor species that favor old growth, such as pileated woodpeckers, bay-breasted warblers, black-throated green warblers, magnolia warblers, Cape May warblers, and flying squirrels. They also contain the highest number of rare plants in the park.

The park contains a diversity of ***wetlands***, including sedge/grass fens, black spruce/larch bogs, shrub fens, and marshes. Wetlands are typically found in the depressions between the dunes.

There are 3 distinct ***grassland types*** in the park that contain many noteworthy vegetation species.

The ***Athabasca River*** forms the east boundary of the park. The river valley contains slumping features, natural floodplain development, and forested islands. ***Pemmican Island***, the largest island within the park, is rich in local history and in old growth forests.

About five kilometers of the ***Klondike Trail***, heavily used as the overland route to the Yukon during the gold rush, goes through the western section of the park.

1.2 Establishment of the Park

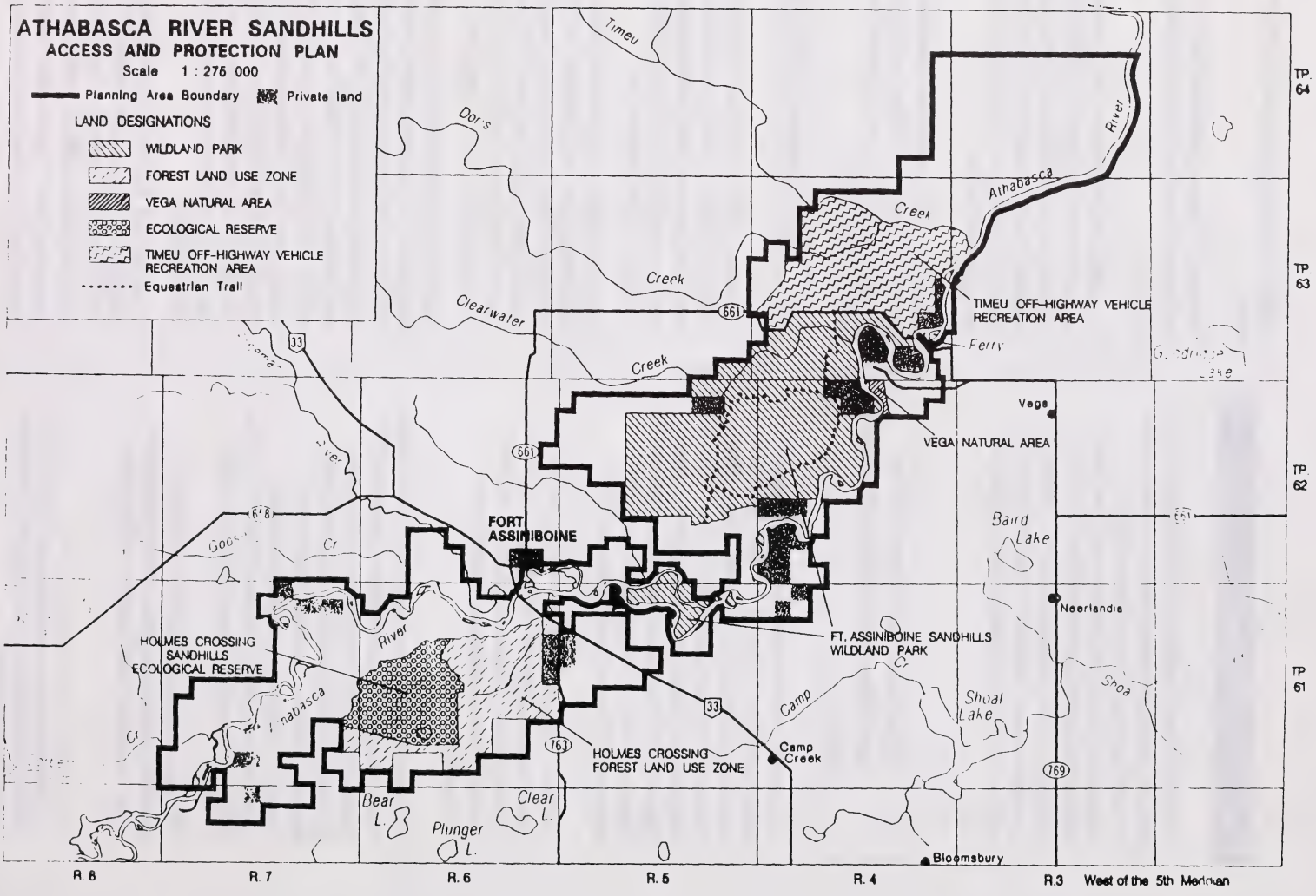
Residents of Fort Assiniboine and surrounding area in 1971 first raised the idea of a provincial park. The proposed park site encompassed a large area north of the Athabasca River, northeast of Fort Assiniboine.

In order to resolve a number of issues, regional land use planning was proposed for the whole Athabasca Sandhills area in the early 1980s. The planning was postponed until 1988, at which time the Athabasca Sandhills Local Integrated Resource Plan (LIRP) was initiated.

This LIRP, completed in 1993, provided a framework for the management and use of public land and resources within the planning area, which stretched along the Athabasca River west and east of Fort Assiniboine (see Access and Protection Map on next page). The area which is now the wildland provincial park was zoned as General Recreation "to retain a variety of natural environments to serve as a focus for a wide range of outdoor recreational activities" (LIRP 1993).

A subsequent Access and Protection Plan (1997) established five areas within the LIRP area. These five areas reconciled the demands of recreational users and the need to protect portions of land by providing a range of protection and recreation opportunities.

[1] Parabolic dunes are in a crescent form, with the horns facing upwind. Transverse dunes are linear-shaped dunes formed at right angles to the prevailing wind.


ATHABASCA RIVER SANDHILLS
ACCESS AND PROTECTION PLAN
Scale 1 : 275 000
Planning Area Boundary
Private land
LAND DESIGNATIONS
WILDLAND PARK
FOREST LAND USE ZONE
VEGA NATURAL AREA
ECOLOGICAL RESERVE
TIMEU OFF-HIGHWAY VEHICLE RECREATION AREA
Equestrian Trail
Timeu
Doris
Athabasca River
Creek
Clearwater
Creek
661
33
TIMEU OFF-HIGHWAY VEHICLE RECREATION AREA
Ferry
Vega
VEGA NATURAL AREA
FORT ASSINIBOINE
Baird Lake
Neerlandia
FT. ASSINIBOINE SANDHILLS WILDLAND PARK
HOLMES CROSSING SANDHILLS ECOLOGICAL RESERVE
River
Camp Cr
Shoal Lake
Shoa
33
763
HOLMES CROSSING FOREST LAND USE ZONE
Camp Creek
769
Bear L.
Clear L.
Plunger L.
Bloomsbury
TP. 64
TP. 63
TP. 62
TP 61
R. 8
R. 7
R. 6
R. 5
R. 4
R.3 West of the 5th Meridian

The five areas are described briefly below.

1. The ***Holmes Crossing Sandhills Ecological Reserve*** provides the highest degree of protection in the LIRP area. It protects nationally significant transverse sand dunes, and allows only low impact activities on foot.
2. 2. The adjacent ***Holmes Crossing Forest Land Use Zone*** has a lower degree of protection and permits recreation not allowed in the reserve, such as equestrian use, and snowmobiling in winter.
3. Farther east along the Athabasca River, ***Vega Natural Area*** is a small site that protects a section of the valley, and allows non-motorized activities.
4. The ***Fort Assiniboine Sandhills Wildland Park*** protects a large area of sand dunes, a variety of wetlands, and associated vegetation and wildlife. It provides opportunities for backcountry recreation, with minimal development. No motorized activities on trails are allowed, except for one snowmobile trail that connects to trails outside the park.
5. ***Timeu Off-Highway Vehicle Recreation Area*** was created primarily to allow for off-highway vehicle use.

1.3 Purpose of Management Plan

This management plan will provide direction for the protection and use of Fort Assiniboine Sandhills Wildland Park for up to ten years from date of approval. More specifically, it will:

- place the park within the system of protected areas in Alberta;
- describe the park;
- discuss objectives and management actions for the park;
- outline surrounding land use and cooperation with surrounding land owners and managers;
- outline implementation of the plan.

1.4 Public Involvement

In May 1997, an implementation committee met to discuss a process for the development of management plans for the five designated areas identified in the Access and Protection Plan. Members of this committee included stakeholders who had been involved throughout the planning process for the Athabasca Sandhills area. The committee decided to hold a series of meetings, open to the public, to discuss management strategies for each of the areas.

A well-attended public meeting to discuss the management of Fort Assiniboine Sandhills Wildland Park was held August 13, 1997 at Fort Assiniboine. Public meetings for all the designated areas were completed by the end of August 1997.

Subsequently, draft management plans were prepared by Natural Resources Service and sent to those who attended the public meetings and to the members of the implementation committee for review. Comments from this review were incorporated into the draft plans.

An open house was held on April 30, 1998 to give the general public an opportunity to review and comment on the plans.

When the public reviews were completed and comments from the public addressed, the plans were sent for approval to the Department of Environmental Protection.

2.0 Role in Alberta's Network of Protected Areas

2.1 Objectives

Four broad objectives are the cornerstones of Alberta's network of protected areas. For wildland provincial parks these objectives are:

Preservation

To preserve the wildland character of the park

Heritage Appreciation

To provide opportunities to explore, understand and appreciate the natural, historical and cultural heritage of Alberta, and to enhance public awareness of our natural environment and our relationship to and dependence on it.

Outdoor Recreation

To provide a variety of intensive and dispersed outdoor recreation opportunities and related facilities and services.

Tourism

To encourage residents and visitors to discover and enjoy the natural, historical and cultural resources of the province through a variety of recreation opportunities, facilities and accommodation services.

Each existing or potential protected area is assessed for its contribution to these objectives. Two tools aid this assessment: first, the Natural Regions Framework which identifies representation themes of a protected area, and second, the legislated classification of the site.

2.2 Natural Regions Framework

The Alberta government is committed to protecting representative samples of Alberta's natural heritage. To help select which areas are the best samples, a framework based on natural features has been adopted. This framework is a hierarchy of natural regions, subregions, and natural history themes. Natural regions provide the "big picture" of Alberta's landscapes, such as grasslands, mountains, and boreal forest. The subregions and natural history themes are subdivisions of the natural regions, and provide a more specific picture of smaller areas.

Natural Regions
↓
Natural Subregions
↓
Level 1 Themes
↓
Level 2 Themes
↓
Level 3 Themes

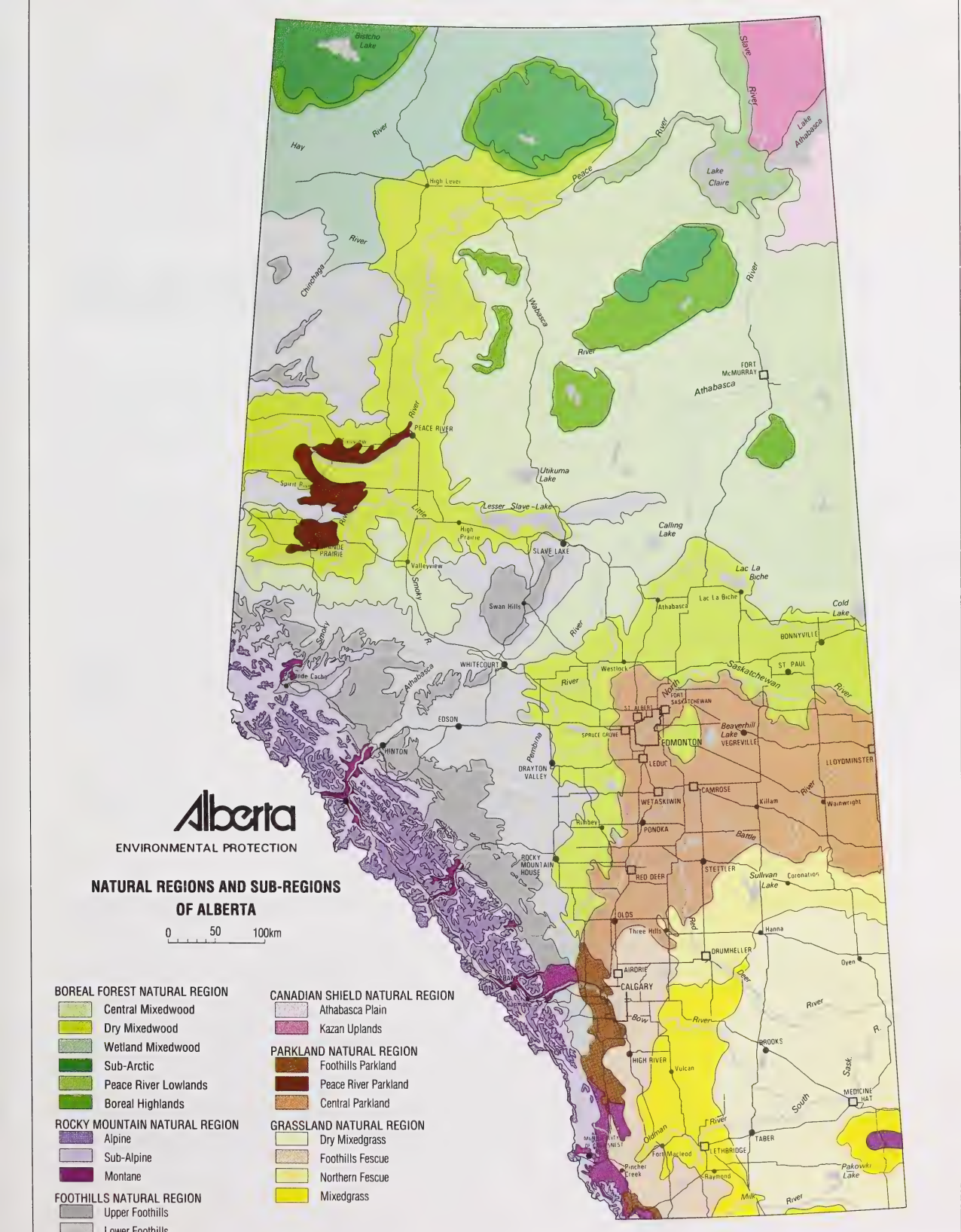
There are six Natural Regions in Alberta. Differences between these regions are readily apparent by their distinct landform features and vegetation. The six regions are Boreal Forest, Rocky Mountain, Foothills, Canadian Shield, Parkland and Grassland (see Natural Regions map).

Each of these Natural Regions has been divided into subregions based on criteria that vary depending on the Natural Region. For instance, the Foothills Natural Region has been divided into 2 subregions, based on differences in elevation and the differences in climate and vegetation which result. The Boreal Forest Natural Region, however, is divided into 6 subregions based on vegetation, geology and landforms. These subregions vary with the predominant forest cover, the topography (level, undulating, or hilly), and the mix of uplands and wetlands.

Subregions are further divided into Level 1, Level 2 and Level 3 Natural History themes. Level 1 themes are based on easily observed landforms, such as wetlands and valley/ridges.

Level 2 themes are more specific breakdowns of Level 1 themes. They refer to distinctive vegetation, habitat types or highly visible geological features. Examples of Level 2 themes for wetlands in the Boreal Forest subregions are bogs, patterned fens, black spruce forests, or shrub land.

Level 3 themes are finer breakdowns of Level 2 themes. They include specific features such as rare plants and animals, and specific bedrock and landform types, for instance parabolic sand dunes.



Produced by Alberta Parks Services, Management Support Division. 1994

Because of their detail, themes are most useful for identifying the natural diversity within Alberta. Level 1 themes can usually be seen on aerial photographs, while Level 2 and Level 3 themes require detailed biophysical studies. Analysis of these themes can determine which sites in Alberta would be the best examples of our natural heritage.

Table 1: Natural History Themes

Natural History Themes Fort Assiniboine Sandhills Wildland Park	
Boreal Forest Natural Region Central Mixedwood Subregion	
Level I Natural History Themes	**Level II Natural History Themes**
Non-Sandy Upland – Ground Moraine	White spruce Mixedwood
Sandy Upland – Sandy Plain	Jack pine forest Deciduous forest Recently burned
Sandy Upland – Dune Field	Stabilized dunes Jack pine forest Recently burned
Valley/Ridge – Protected Slope	White spruce forest Mixedwood forest Deciduous forest Spring
Valley/Ridge – Exposed Slope	Eroded sandstone bedrock
Valley-Ridge – Floor/Stream	White spruce forest Black spruce forest Mixedwood forest Deciduous forest River Muskeg stream
Wetland - Mineral	Marsh Swamp White spruce forest Black spruce forest Shrubland
Wetland – Organic	Bog Patterned fen Non-patterned fen Black spruce forest Tamarack forest Shrubland Graminoid
Lake	Eutrophic Mesotrophic

Fort Assiniboine Sandhills Wildland Park is in the **Central Mixedwood Subregion** of the **Boreal Forest Natural Region**. Table 1 shows the Level 1 and Level 2 Natural History Themes represented in the park.

2.3 Classification and Legislation

The possible classifications of protected areas under Alberta legislation are Ecological Reserves, Wilderness Areas, Wildland Parks, Provincial Parks, Natural Areas, and Provincial Recreation Areas. These classifications and the corresponding legislation are under review and may be revised in 1999.

These classifications vary in the contributions they make to the provincial objectives. For instance, Ecological Reserves contribute mostly to the preservation objective, and Provincial Recreation Areas contribute primarily to the outdoor recreation objective.

A wildland park is a relatively new class of protected area. It places greater emphasis on preserving the natural landscape than provincial parks, and correspondingly a lesser emphasis on facility-oriented outdoor recreation.

Wildland parks are currently established under the Provincial Park Act. This act mandates provincial parks to be developed and maintained:

a) for the conservation and management of flora and fauna;
b) for the preservation of specified areas an objects therein that are of geological, cultural, ecological, or other scientific interest; and
c) to facilitate their use and enjoyment for outdoor recreation.

RSA 1980 cP-22 s3

The Provincial Park Act was amended in 1996 to accommodate the differences in management between provincial parks and wildland parks. The amendments are:

- Hunting is allowed in wildland parks;
- Random camping, and associated open fires, is allowed in wildland parks; and
- No dispositions, such as grazing leases and surface access for industrial use, will be granted

in wildland parks. Existing dispositions will be honored.

2.4 Contributions of the Park to Provincial Objectives

Fort Assiniboine Sandhills Wildland Park contributes to all four provincial objectives.

Contributions to the Preservation Objective

- Protects samples of 33 Level 2 Natural History Themes of the Central Mixedwood Subregion. Twelve of these themes are present in significant numbers or cover a large area.
- Protects an extremely wide diversity of vegetation, including 436 plant species.
- Protects significant landscapes, such as grasslands, old growth forests, and wetlands.
- Protects a portion of the Athabasca Sandhills

Contributions to the Heritage Appreciation Objective

- Offers visitors the opportunity to explore on their own the rich natural and cultural heritage found in the park.
- Contains a section of the historic Klondike Trail and other historical artifacts.

Contributions to the Outdoor Recreation Objective

- Provides opportunities for commercial and recreational trail riding, hiking and cross-country skiing on an extensive trail network.
- Allows snowmobile access through the park on a designated trail that connects the Timeu OHV Recreation Area with the Village of Fort Assiniboine.
- Provides opportunities for other backcountry recreation such as random camping.

Contributions to the Tourism Objective

- Supports local commercial trail riding and outfitting operations.
- Provides opportunities for nature-based tourism and backcountry experiences.

2.5 Guiding Principles

These guiding principles for the management of Fort Assiniboine Sandhills Wildland Park are based on principles of ecosystem-based management and wilderness management.

1. Ecosystem-based management attempts to care for the land in a responsible way that will sustain its ecosystems. In order to do this all components of the ecosystem must be considered, including the natural landscape, ecological processes, the physical and biological components, and human activities.

2. Ecosystem management means taking a long-term view, instead of managing just for today. Fort Assiniboine Wildland Park will be managed so that its wildland character will be sustained for the future. However, this is an enormous responsibility, as in fact little is known about the complex dynamics of a natural system and how changes in one component affect other components. The key is to adapt management practices as one learns more about the natural and social conditions in a protected area.

3. Wildlands generally have few human disturbances and the natural system is largely self-managing. The focus, then, will be on allowing natural processes to operate as freely as possible, and on managing human use of the area to keep interference with natural processes to a minimum.

4. A protected area will not likely survive as an intact ecosystem without the support of the users, the stakeholders, and the local community. The park will take the lead in seeking the involvement of these people, and soliciting their support for park objectives.

5. Parks do not exist in a vacuum. What goes on outside a park can have impacts inside the park. Conversely, designation of a protected area can affect the management of adjacent land. Park managers and adjacent land managers need to work together in order to reach objectives of both areas.

3.0 Overview of Park

3.1 Regional Setting and Access

The park is located about 30 kilometers northwest of Barrhead in north central Alberta, and about 15 kilometers northeast of Fort Assiniboine.

Access to the park is via Secondary Highway 661 from the west through Fort Assiniboine, or from the east across the Vega ferry crossing. An unimproved municipal road runs through the west end of the park leading to private land along the river.

3.2 Description of park

3.2.1 Geology/Surficial Deposits/Landscape

Geology
The park is located within a broad plain sloping gently from the northwest to the southeast. The southeast edge of the plain is incised by the Athabasca River valley.

Topography within the park ranges from undulating sand plains to ridged or hummocky sand dunes. The depressions between the dunes contain wetlands. Within the river valley the topography is variable, from generally level fluvial terraces and abandoned channels in the floodplain to steeply inclined and eroded valley walls.

The bottom layer of bedrock in the park area is the marine shale sediments of the Lea Park and La Biche Formations. Over this lies the Wapiti Formation composed of non-marine sandstones, mudstones, bentonite and scattered coal beds from the Late Cretaceous period. Outcrops of the Wapiti Formation occur along the eroded banks of the Athabasca River.

Surficial Deposits
Deposits overtop the bedrock (surficial deposits) include cobbles, gravels and sands from the Late Tertiary period, as evident in many exposures along the Athabasca River. These materials were deposited by rivers flowing eastward as the Rocky Mountains formed. Glacial till from the Wisconsin ice age blanketed these deposits except in the Athabasca River valley where the till was reworked and deposited downstream as fluvial sediments.

During the decline of the Wisconsin ice age, meltwater lakes were formed and reformed in the area as the glaciers retreated, depositing dominantly silty clay sediments (glaciolacustrine deposits). These clays generally mantled the till deposit. At the same time, sands were deposited in the deltas of meltwater rivers that fed into the glacial lakes.

Most of the park is covered with sands deposited by the meltwater rivers. Prevailing northwest winds worked the sands into a state transitional between transverse and parabolic dunes. It appears that these dunes are presently stabilized, but lack of soil development in some areas suggests that this occurred quite recently.

The extreme western portion of the park is covered with organic deposits. Relatively recent river and stream deposits (alluvial deposits) are present in the Athabasca River valley and the lower reaches of Clearwater Creek.

The map on the next page indicates the surficial deposits in the park and the surface topography.

Landscape Types
The landscape types in the park can be summarized as follows (Timoney and Robinson 1997):

1. Sand dunes dominate the eastern part of the park, stabilized by a forest of primarily jack pine.
2. Undulating loess plains (loess is silt deposited by wind).
3. Organic and inorganic wetlands occur in the depressions between the dunes in the eastern section of the park. The western part of the park is predominantly wetlands. Many wetlands exhibit tree dominance on their west sides grading to sedge dominance on their east sides.

4. The riparian zone along the Athabasca River, including the flood plain, terraces, slopes and islands, has a variety of vegetation including old growth mixedwood forests.
5. Colluviating slopes (areas of mass slumping) occur along the slopes of the Athabasca River valley. These areas are limited, but because of differing aspects provide a diversity of habitats.

3.2.2 Soils

In most if this area the sandy parent material has had a strong influence on soil development. Sands are frequently distributed by wind and water erosion and consequently soil development is limited in some areas.

Most of the well-drained sand dune/plains area is covered with Brunisolic soils, which are generally rapidly to imperfectly drained soils that occur under forest stands.

The sedge fens and other wetlands are typically covered with mesisols, organic soils that are water saturated over long periods of time. Gleysols (soils saturated periodically) are found in poorly-drained areas associated with the wetlands.

Regosols, weakly developed soils due to erosion or flooding, predominate in the river valley and along the valley slopes.

3.2.3 Climate

The climate in this area is described as subhumid, continental with short, cool summers and long, cold winters. The wettest months are June and July with the winter being a period of relatively low precipitation.

3.2.4 Aquatic Resources

The park is within the Athabasca River watershed. The northeast section is drained by Clearwater Creek, the only significant Athabasca River tributary that flows through the park. Small seasonal streams drain into the valley from wetlands above. Extensive fen wetlands have formed in the west of the park, and in depressions between the dunes in the eastern portion of the park.

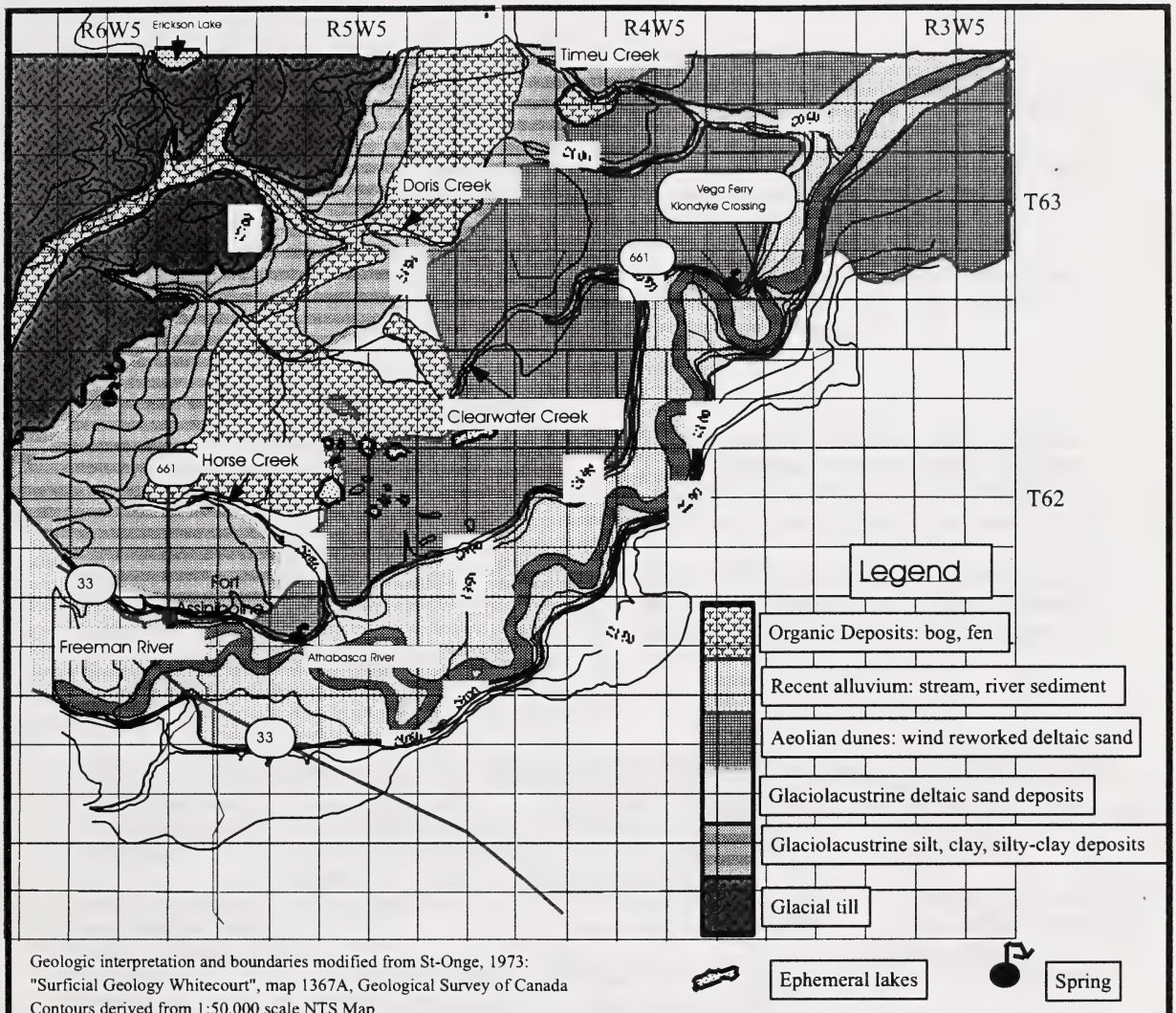
Groundwater generally flows southeastward along bedrock towards the Athabasca River. Water flow nearer the surface may move downward through sands to the underlying lacustrine clays and be directed horizontally towards the river. This water is occasionally discharged through small springs on the valley slopes.

3.2.5 Vegetation Communities

The park contains an extraordinary amount of vegetation diversity, including 436 species of plants. Twenty of these are considered rare in Alberta. See Appendix A for list of vegetation species in park and Table 3 for rare and noteworthy species.

Fifteen vegetation types were identified in the park by Timoney and Robertson (1997). They are described in Table 2. In general, a parkland mosaic of jack pine forests and grasslands cover much of the sandhills areas. The wetlands range from domination by black spruce and larch to sedges. The Athabasca River valley contains a large diversity of vegetation, ranging from old growth mixedwood to willow communities. The grasslands, the old growth forests, and the wetland communities are the most significant vegetation types.

Grasslands
The three fairly distinct grasslands are all on dry sites and are to some extent fire-dependent. The Northern ricegrass grasslands are typical in sandhill areas and are closely associated with jack pine forests. The slender wheatgrass grassland is more sporadic in distribution in the boreal forest, and succeeds to aspen forest. The third grassland, dominated by western porcupine grass, is usually found on loamy soils instead of the sandy soils found in these areas. The grasslands contain a variety of noteworthy plant occurrences (see Table 3).



Geologic interpretation and boundaries modified from St-Onge, 1973:
"Surficial Geology Whitecourt", map 1367A, Geological Survey of Canada
Contours derived from 1:50,000 scale NTS Map

3-D View of Surface Topography

View north 25 degrees east, @ angle 25 degrees above horizontal;
vertical exaggeration 8 X's

Alberta Geological Survey E.U.B.

Surficial Geology, Fort Assiniboine Area

Contour Interval 50 feet

(10 Km)

L.D. Andriashek	Figure 1
Date:2/19/98	200000

Old Growth Forests

The riparian old growth white spruce and white spruce mixedwood forests of the Athabasca River valley are the most noteworthy forests in the park. They contain the highest species diversity and also the greatest concentration of rare plants. Stand ages in these forests exceed 160 years, and could be in excess of 200 years. The largest concentration of these forests is on Pemmican Island and on the large island immediately downstream of Pemmican Island.

Old growth white spruce and mixedwood forests are also scattered across the park along small creeks, and where nearby wetlands and ponds have protected the sites from fire.

Wetlands

The park contains a diversity of wetland types. Surface forms for peatlands in the park include (Timoney and Robinson 1997, after Vitt et. al. 1996):

1. wooded, unpatterned, non-permafrost fens with no internal lawns;
2. open, unpatterned, non-permafrost, graminoid-dominated fens;
3. unpatterned, non-permafrost, open shrub fen; and
4. unpatterned non-permafrost wooded bog with no internal lawns.

These types all occur in the park.

Vegetation communities within each surface type vary, so the diversity of the wetland communities in the park is high.

Other

Seeps are common along or at the base of the valley wall of the Athabasca River. They are often iron-rich or calcareous, and uncommon plants can be found in these areas (see Table 3).

Slumping and mass wasting along the slopes of the valley wall create diverse microclimates, with a corresponding variety of vegetation.

Table 2: Vegetation Types of Fort Assiniboine Sandhills Wildland Park (Timoney and Robinson 1997)

Vegetation Type	General Location	Characteristic Vegetation	Comments
Porcupine Grass Grasslands*	Steep well-drained dune slopes; colluviating sandy slopes	Western porcupine grass, bearberry, hairy screw moss (*Tortula ruralis*)	Very dry sites, to some extent fire-dependent
Jack Pine Forests and Jack Pine/Rice Grass Savannahs	Rolling sand dunes	Jack pine,northern rice grass, green alder, big redstem moss	Transition from grasslands to forests, still dry, somewhat fire-dependent
Slender Wheatgrass Grasslands	Somewhat moister dune slopes and colluviating areas	Slender wheatgrass, western wheatgrass, hairy wild rye, needle grasses (*stipa*)	Succeeds to aspen forest
White spruce forest	From silty colluviating slopes to alluvial deposits along Athabasca River	White spruce, river alder.	High species diversity and concentration of rare plants.
Mixed deciduous forest	On silts or very fine sands	Dominant are aspen or Alaska birch or balsam poplar. Shrub layer includes chokecherry, wild sarsaparilla	A heterogeneous deciduous forest group with a well-developed shrub layer
Aspen	At base of slopes	Aspen	An unusual ecotonal** vegetation type
Mixedwood	Moist silty soils, either on loess plains with seepage, or along steams and riparian terraces of the Athabasca River	White spruce, balsam poplar, river alder, meadow horsetail.	Many riparian stands are 160+ years. Contain highest species diversity and concentration of rare plans. Most diversity on on the islands, also near wetlands and small creeks.

Table 2 (continued): Vegetation Types of Fort Assiniboine Sandhills Wildland Park

Vegetation Type	General Location	Characteristic Vegetation	Comments
White Spruce/jack pine forest	North facing to slighty depressional dune areas	Jack pine, white spruce, green alder, big redstem moss	
Willow/alder communities	Silt floodplain and first terraces of the Athabasca River	Varigated scouring rush, golden sedge, tall clustered thread moss, many willows including mountain willow (*Salix pseudomonticola*), sandbar willow, little-tree willow (*S. arbusculoides*)	Sites usually disturbed by frequent flooding
Seepage meadows	Silty soils where laterally-flowing nutrient-rich water reaches the soil surface.	Slender-stemmed hair moss (*Ditrichum felxicaule*) and common horsetail (*Equisetium arvense*)	Often seepage iron-rich or calcareous, species rich
Riparian meadow/ back swamp	Floodplain of slow-moving streams i.e. Clearwater Creek, abandoned back channels of the Athabasca River	Sedges and mosses i.e. Beaked sedge, common hook moss (*Drepanocladus aduncus*)	Backwater "swamps" are sedge marshes
Marshes	Wetlands areas	Woolly sedge (*Carex languinosa*), small bladderwort (*Utricularia minor*)	Areas of open water for much of the year, transitional to fens
Rich fens (rich in nutrients)	Wetlands areas	Woolly sedge (*Carex languinosa*), small bladderwort (*Utricularia minor*), yellow star moss (*Campylium stellatum*), red hook moss (*Drepanocladus revolvens*) type; Hairy-fruited sedge (*Carex lasiocarpa*), beaked sedge (*C. utriculata*), prostrate sedge (*C.chordorhiza*), red hook moss (*Drepanocladus revolvens*) type	Fens are similar to marshes, but differ by accumulation of peat and different species Rich fens usually lack strings, shrubs and trees.
Mesotrophic fens (medium rich in nutrients)	Wetlands areas	Larch, buckbean (*menyanthes*), two-stamened sedge (*Carex diandra*), golden moss (*Tomenthypnum*) type; Larch, hairy-fruited sedge (*Carex lasiocarpa*), stick hook moss (*Drepanocladus vernicosus*) type; other types	Older developed mesotrophic fens tend to have a string or network pattern
Poor fens and bogs	Wetlands areas	Black spruce, larch, big redstem moss, Knight's plum-moss, stairstep moss, bog cranberry, Labrador tea.	Usually significant peat accumulation and a hummocky or domed surface.

Vegetation types are organized from generally drier to wetter

** *Refers to transitional zone. In this case vegetation is a mix of upland and wetland vegetation*

Table 3: Rare/Noteworthy Vegetation Species in Fort Assiniboine Sandhills Wildland Park

Rare** and Noteworthy* Plants in Fort Assiniboine Sandhills Wildland Park		
Grasslands & Savannahs	**Old growth riparian**	**Wetlands**
Low milkweed (*Asclepias ovalifolia*)** S2, G5	Moss (*Brachythecium albicans*)** S2, G5	Lakeshore sedge (*Carex lacustris*)** S2, G5
Rock little clubmoss (*Selaginella rupestris*)** S3	Moss (*Brachythecium campestre*)** S2, G4G5Q	Wooley sedge (*Carex lanuginosa*)*
MacCalla's aster (*Aster x maccallae*)** SU, HYB	Moss (*Brachythecium rutabulum*)** S2, G5	Prairie sedge (*Carex prairea*)*
Lichen (*Melanelia olivacea*)**	Moss (*Campylium polygamun*)** S3, G5	Stump cladonia (*Cladonia botrytes*)*
Lyre-leaved rock cress (*Arabis lyrata*)*	Moss (*Campylium radicale*)** S1, G3G5	Blunt-leaved bog orchid (*Habernaria obtusata*)*
Purple reedgrass (*Calamagrostis purpurascens*)*	Moss (*Entodon schleicheri*)** S1, G3G5	Bog muhly (*Muhlengergia glomerata*)*
Thread-leaved sedge (*Carex filifolia*)*	Moss (*Zygodon viridissmus*)** S1, G5	**Iron Seeps**
Richardson's sedge (*Carex richardsonii*)*	Lichen (*Peltigera collina*)**	Rayless Aster (*Aster brachyactis*)*
Ross' sedge (*Carex rossii*)*	Lichen (*Peltigera evansiana*)**	Bristle-leaved sedge (*Carex eburnea*)*
Low sedge (*Carex stenophylla*)*	Lichen (*Peltigera horizontalis*)**	Bristle-staked sedge (*Carex leptalea*)*
Oat grass (*Danthonia intermedia*)*	Lichen (*Physcia dimidiata*)**	Round-leaved sundew (*Drosera rotundifolia*)*
Golden aster (*Heterotheca villosa*)*	Lichen (*Physconia enteroxantha*)**	Alpine rush (*Juncus alpinoarticulatus*)*
Narrow-leaved puccoon (*Lithospermum incisum*)*	Lichen (*Heterodermia speciosa*)**	**Willow/alder Communities**
Cow-wheat (*Melampyrum lineare*)*	Small enchanter's nightshade (*Circaea alpina*)*	Prairie wedge grass (*Spenopholis obtusata*)** S2, G5
Drummond's cockle (*Silene drummondii*)*	Stiff clubmoss (*Lycopodium annotinum*)*	Large northern aster (*Aster modestus*)*
Low goldenrod (*Solidago missouriensis*)*	White adder's mouth (*Malaxis monoplylla*)** S2, G5	Drummond's willow (*Salix drummondiana*)*
Sand grass (*Calamovilfa longifolia*)*		**Disturbed area**
Western porcupine grass (*Stipa curtiseta*)*	**Calcareous Seep Meadow**	Narrow-leaved goosefoot SU, G5 (*Chenopodium leptophyllum*)*
Long-fruited anemone (*Anemone cylindrica*)*	Thin-leaved cotton grass (*Eriophorum viridi-carinatum*)*	
Sand dropseed (*Sporobolus cryptandrus*)*		

** Rare plants and *noteworthy plants listed in Timoney and Robinson 1997. Those rare plants with (G) and (S) ratings are ranked by Alberta Natural Heritage Information Center (G=global ranking, S=provincial ranking):

G1 S1: 5 or less occurrences or only a few remaining individuals
G2 S2: 6-20 occurrences or with many individuals in fewer occurrences
G3 S3: 21-100 occurrences, may be rare and local throughout its range, or in a restricted range
G4 S4: apparently secure under present conditions, typically less than 100 occurrences but may be fewer with many large populations
G5 S5: Demonstrably secure under present conditions, more than 100 occurrences.
GU SU: Status uncertain often because of low search effort or cryptic nature of the element.
HYB: hybrid taxon that is recurrent in the landscape
Q taxonomic questions or problems

3.2.6 Wildlife

The diverse ecosystems within the park provide habitat for a variety of wildlife species.

The riparian old growth forests in the river valley, with their diverse plant species and structural complexity, perhaps harbour the most diversity of wildlife in the park. Here is some of the best habitat in the province for cavity-requiring bats, ducks, and many birds and mammals. Bank swallows, a provincially uncommon species, are locally abundant on eroded riverbanks. Mule deer, white-tailed deer and moose browse extensively in riparian willow and woodland communities and use the valley as a travel corridor. Beaver, mink and muskrat are likely along the river, and river otter have been reported. Black bear may inhabit dens along the protected slopes of the river valley.

Beaver impoundments are quite extensive along Clearwater Creek. These impoundments over the years create cycles of habitat modification that promote diversity.

The mature and old growth forests in the upland areas of the park provide habitat for such species as the great gray owl, Cooper's hawk and pileated woodpecker. This area has been identified as providing critical habitat for great gray owls, which use large areas characterized by a mosaic of forested patches with numerous openings. Such areas are becoming rarer in Alberta with the increasing fragmentation of the boreal forest from logging (Kirk and Duncan 1994). Passerines that live in old growth include black-throated green warbler, Cape May warbler and brown creeper. Sand hill cranes have been sighted in the park, but it is unknown if they nest here.

3.2.7 Historical/Cultural Resources

The Klondike Trail runs in a north/south direction through the west end of the park. This trail was first established from Edmonton to Fort Assiniboine in 1824-25 as a portage between the North Saskatchewan and Athabasca Rivers, and was a major link in the Hudson's Bay Company transcontinental transportation route.

When Fort Assiniboine closed in 1877, the trail fell into disuse, but was revived as part of the overland route to the Klondike during the 1897-1899 Gold Rush. The grave of a young daughter of one of the Klondikers is marked along the original trail.

Another historic north-south trail, used by aboriginal people and immigrants, travels through the eastern portion of the park. Community volunteers are currently researching the route of this trail.

4.0 Objectives and Management Actions

The primary objective of management is to maintain the wildland character of the park, while accommodating backcountry recreation activities compatible with the setting.

For the most part, natural processes in the park will continue to function without interference from management by humans. The exception to non-interference is suppression of fires and management of diseases and pests which may threaten the forests outside the park, and which may also threaten the recreational values inside the park. Hunting and trapping are also human interventions, and will be managed in the park on a sustainable basis.

Since the natural environment of the park is mostly self-maintaining, the focus of management will be on control of human use and its impacts on the park environment. Management guidelines are to ensure that these impacts do not go beyond acceptable levels.

4.1 Protection

4.1.1 Geological/Landforms Resources

Objectives

- To maintain the sand dunes and their associated wetlands in a natural state.

- To allow active natural processes along the river shorelines, such as slumping and flooding, to continue without interference.

Management Actions

The sand dunes are stable because of vegetation cover and climate. This stability must be maintained in order to preserve them. Monitoring will be done in dune areas where there is human activity, for instance trails and staging areas, to detect damage that could undermine their stability.

Natural processes such as weathering and erosion by wind, water and ice will normally be allowed to continue without interference.

Slumping along the valley wall of the Athabasca River creates sites with differing topography and hydrology. This is a natural process, and will not be interfered with. Human use is discouraged in these areas, as they are highly sensitive to disturbance, and are hazardous because of their instability.

Catastrophic events such as flooding, drought, and windstorms are naturally occurring, and cannot be controlled.

4.1.2 Aquatic Resources

Objectives

- To protect the diversity of wetlands in the park.

- To protect Clearwater Creek and other streams from unacceptable impacts from human use.

Management Actions

The diversity of wetlands is a significant feature of the park. To protect them, activity in these areas will generally be limited.

Drainage of wetland areas may be subtle but crucial to their survival. Any developments, for instance unavoidable trail connections that may cross a portion of wetland, must allow for drainage to continue.

Erosion of banks along drainage systems such as Clearwater Creek will be monitored for impacts from equestrian use.

4.1.3 Vegetation

Objectives

- To maintain the diversity of vegetation communities in the park

- To allow natural disturbance regimes, which help to maintain this diversity, to operate in

the park. If this is not feasible, natural disturbances may be simulated.

- To protect the old growth forests and the rare and noteworthy species in the park.

Management Actions - Fire
Historically, fire has been the major natural disturbance in the park. Forest fires burned in the Pride Valley and Deep Creek areas in 1941 and 1943, respectively. The last large fire in the park was in 1968, when much of the park area burned except for wet areas. Jack pine and aspen have regenerated from these fires.

However, in consideration of threats to surrounding lands as well as to recreation values within the park, wildfires will be suppressed. The park is within the protection area of Land and Forest Service, and they will be responsible for the fire suppression.

In order to simulate the natural disturbance of fire, prescribed burning will be considered in areas where encroachment is resulting in loss of diversity, for instance when encroachment by jack pine, aspen and shrubs are reducing grassland cover. Locations such as north-facing dunes, dune slope bases, loess deposits and wetter areas where grasslands would not form should not be burned. In these areas the forests are usually healthy old growth forests which are self-sustaining.

Utmost care would be taken to ensure that surrounding lands were not threatened by the prescribed burning.

A Fire Management Plan will be prepared with Land and Forest Service. The plan will include:
- A fire history of the park and surroundings;
- An assessment of fuel types;
- Climatic and meteorological characteristics;
- Maps of the park showing locations of old-growth forest, rare species, and other features;
- Potential fire behavior and constraints;
- Environmentally sensitive fire-fighting techniques and equipment that will make the least impact on the park;
- Pre-suppression measures for fire hazard reduction; and
- A prescribed burn program, including monitoring of burn area.

Management Actions – Vegetation
Non-native species can invade an area, taking the place of native species. Possible sources of invasion are from surrounding agricultural lands, from industrial activity in the park, and from horse feed brought in by trail riders. Non-native vegetation will be removed if found in the park.

Some trails formerly used by off-highway vehicles (OHVs) will be closed and allowed to rejuvenate naturally. If replanting is necessary in some areas, only native species will be used.

Any sites of rare species identified from the vegetation inventory will be protected and monitored.

Management Actions – Pests and Diseases
Pests and diseases are another natural disturbance in a boreal forest. Dwarf mistletoe (*Arceuthobium americanum*) is present in the jack pine forests in the park, and helps to maintain the forest/grassland mosaics by retarding succession to pure jack pine forests. This preserves diversity in the park. The mistletoe will be monitored for its effects on the jack pine and its cumulative effects on diversity in the park.

4.1.4 Wildlife

Objectives
- To maintain habitats for the variety of wildlife found in the park

Management Actions
Because of its diversity, the park provides habitat for a variety of wildlife. As far as is known no endangered wildlife species inhabit the park, but the forests are home to a variety of vulnerable species of birds which use large areas of older growth forests for all or part of their breeding range. These include Cooper's hawk, great gray owl, and pileated woodpecker.

Maintenance of vegetation diversity will ensure continued habitat for these species.

Hunting is allowed in a wildland provincial park. It is subject to the conditions of Wildlife Management Unit (WMU) 507. Motorized vehicles are not allowed in the park for hunting.

Trapping is also allowed, and there is presently a trapping disposition in the park. This activity will continue subject to Natural Resource Service regulations. The trapper is allowed to use a snowmobile for trapping purposes only. There are no cabins used for trapping purposes in the park, and none will be permitted.

The park is natural habitat for bears, and visitors should be aware of possible bear encounters. Any problem bears should be reported to Fish and Wildlife officers, who will manage the situation appropriately.

A bird and wildlife inventory will be prepared for the park. The inventory will focus on birds and wildlife in the significant landscape areas – grasslands, old-growth forests along the river valley, and wetlands. The inventory will add to our knowledge about wildlife, particularly wildlife in old growth riparian forests. This is a specialized habitat in the province which is increasingly endangered by logging.

4.1.5 Historical/Cultural Resources

Objectives

- To protect the cultural features in the park such as the historic trails

Management Actions

About five kilometers of the historic Klondike Trail runs through the park. A trapper's cabin used by Wilfred Schulte still stands along the trail, as does the gravesite of the young daughter of Klondikers. The aboriginal migration trail is being identified and mapped by community volunteers.

Natural Resources Service will protect these heritage resources, and will support community initiatives to understand and appreciate them.

Considering the park's proximity to the Athabasca River, and the historical travel routes that run through the park, the area may be rich in paleontological[2], archaeological, and historical resources. To date no historical assessments have been conducted in the park area, but these will be encouraged.

4.2 Heritage Appreciation

Heritage appreciation is a valuing of our natural and cultural heritage. The intent of a wildland park is to provide the opportunity for visitors to explore and learn about, on their own, their natural and cultural heritage in large natural landscapes.

4.2.1 Interpretation/Environmental Education

Objectives

- To offer the opportunity for unstructured exploration of the natural and cultural heritage of the park

Management Actions

In keeping with the intent of a wildland provincial park, Natural Resources Service will not offer personal interpretation programs to park visitors.

Impersonal services such as interpretative trails are appropriate in this park. The trails could have interpretative signs installed at points along the trail that are keyed to a map and brochure. The Trail and Facilities Map on the next page contains suggestions for vehicle pulloffs with short interpretation trails. Longer interpretation trails will be investigated.

Themes for interpretation relate to the park natural history themes, and include the formation of sand dune topography, the diversity of wetlands, old growth forests, fire as a natural disturbance, and riparian ecology in the Athabasca River valley.

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[2] Paleontology is a science dealing with the life of past geological periods as known from fossil remains.

4.2.2 Visitor Information

Objectives

- To provide information to visitors that will help them understand the intent of the park and appreciate its heritage.

Management Actions

Before the wildland park designation, this area was used extensively by OHV users. This activity is no longer permitted under current policy. A transition period has been used to educate the public about the changes in allowed use and to create an understanding of the park and its objectives. To this end, Natural Resources Service has patrolled the area, talked with visitors, and distributed information brochures.

Two sets of signs (three signs per set) have been installed at park access points. These sets include a map of the Athabasca River Sandhills area, a description of the five designated areas, and description and regulations of Fort Assiniboine Wildland Provincial Park.

Many visitors, including OHV users who previously used the park, arrive in the area via the Vega Ferry. Signs describing the park have been installed at the ferry crossing, and Natural Resources Service will work with the M.D. to develop a self-serve information display suitable for the ferry.

Boundary signs have been placed along Secondary Highway 661, and will be placed at other points along the boundary.

Natural Resources Service will develop a brochure that will provide an overview of the natural and historical features in the park, a map of the park, information about appropriate recreational activities, and park regulations.

In general, signs will be used sparingly in the wildland park, and will be designed to fit unobtrusively into the park environment.

4.3 Outdoor Recreation

The intent of the park is to offer opportunities for dispersed non-motorized backcountry recreation, such as trail riding, hiking, cross-country skiing and random camping. Trails and associated facilities such as staging areas will be the only developments in the park.

As a general guideline, trails north of Clearwater Creek will cater to hikers, with one staging area off Secondary Highway #661. Equestrian use will occur mostly south of Clearwater Creek, with two staging areas. The western and northwestern part of the park will have no trail development because of sensitive wet areas.

4.3.1 Access/Staging Areas

Objectives

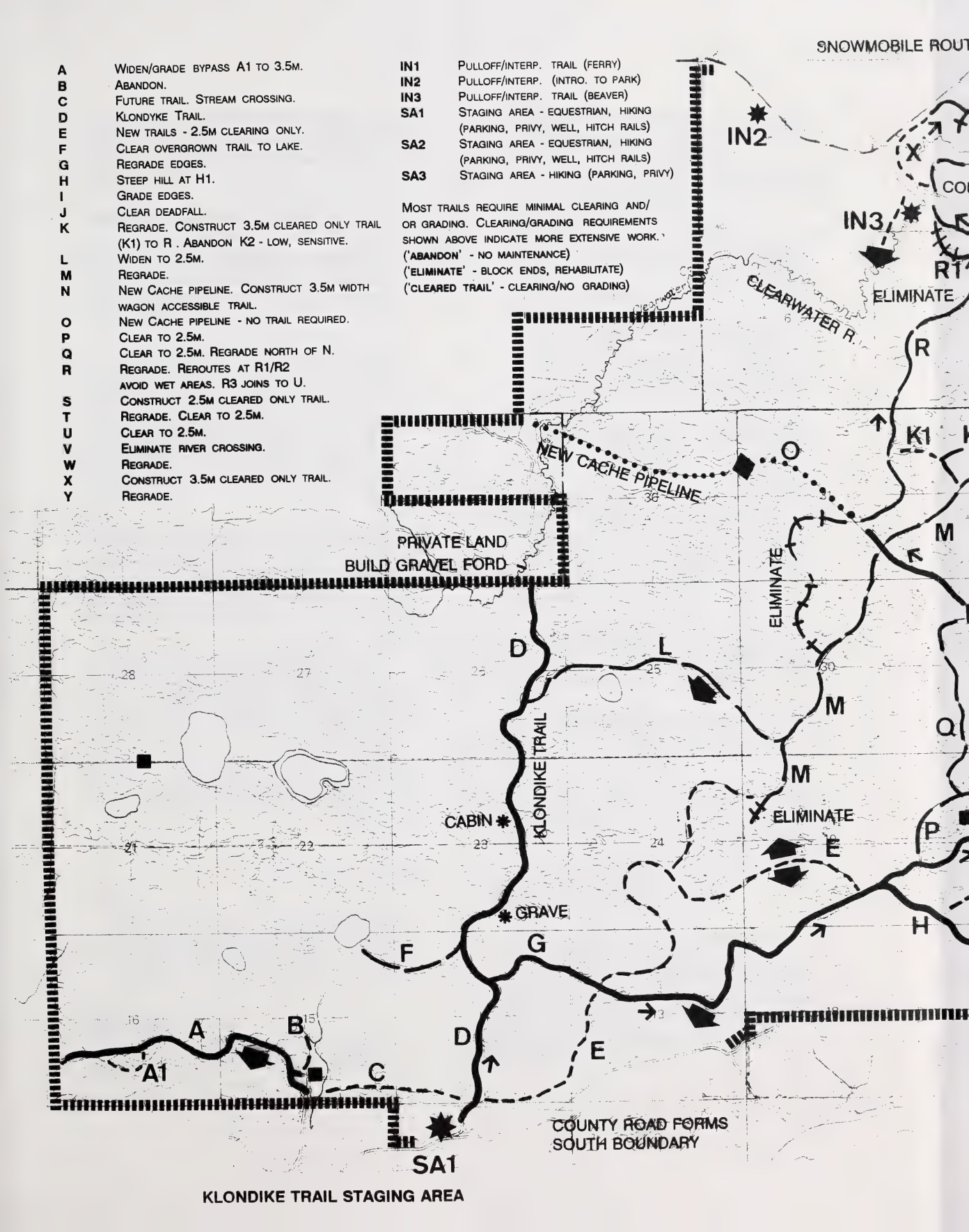
- To provide controlled access and staging areas in the park.

Management Actions

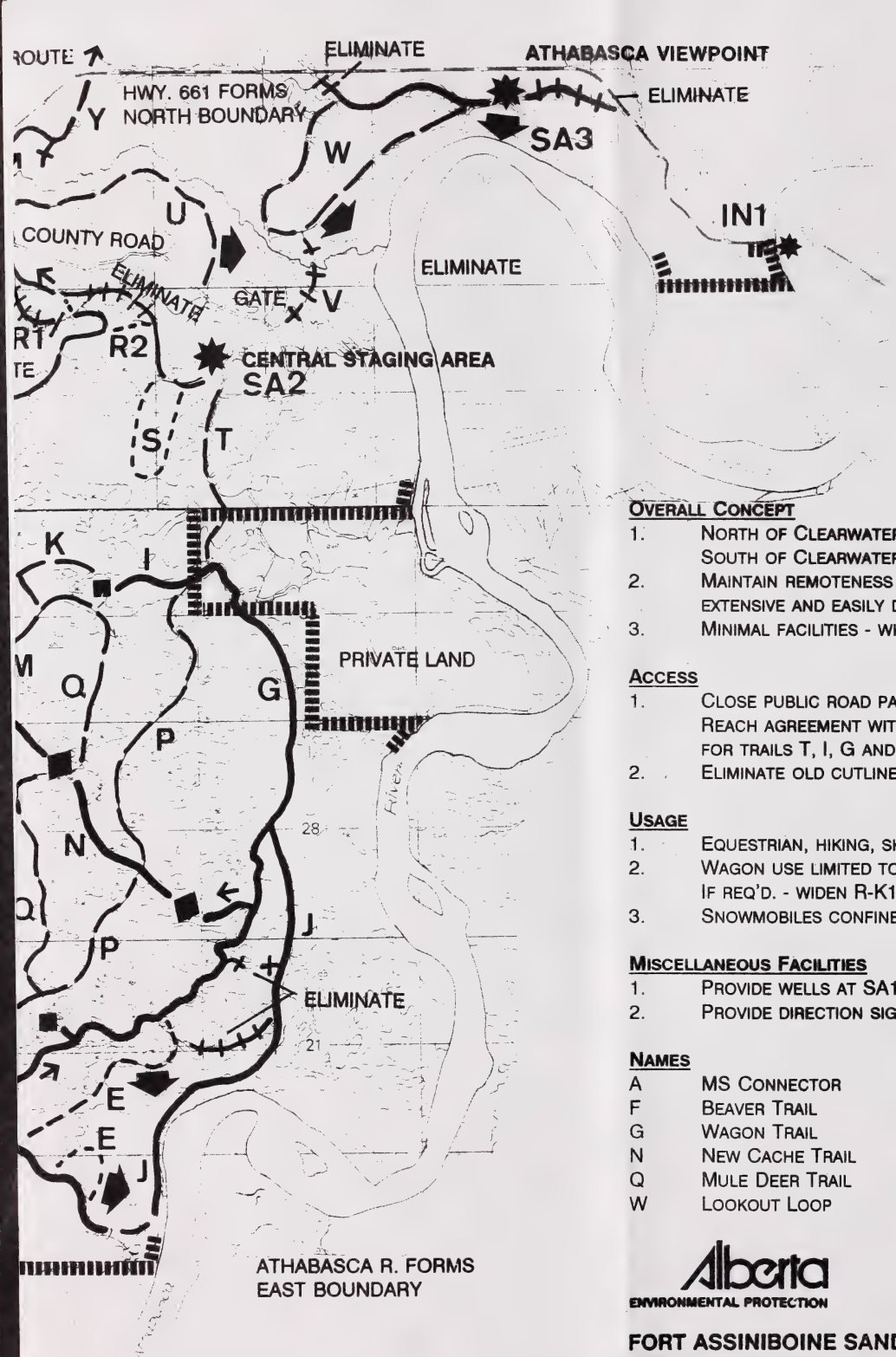
The park has two main access/staging areas and one smaller access/staging area. These are Klondike Trail Staging Area (SA1), Central Staging Area (SA2) and Athabasca Viewpoint (SA3), marked on the Trails map.

The Klondike Trail Staging Area is at the southwestern end of the park. It provides access and parking for visitors, probably primarily equestrians, who use trails starting at the south end of the park. The staging area will be upgraded to accommodate about 15 pull-through sites for vehicles and trailers. Since potential equestrian use of the park is unknown, the staging area will be designed to permit enlarging should use demand it.

The other main access/staging area, Central Staging Area, is about 3 kilometers south of Secondary Highway #661 along the M.D. road that leads to private land along the Athabasca River. This staging area provides access to trails in the eastern section of the park. The staging area is a large open area that has been used for informal camping for many years. No formal designation of parking sites will be done at this



KLONDIKE TRAIL STAGING AREA



LEGEND

- PARK BOUNDARY
- EXIST TRAIL
- EXIST. WAGON ROAD
- NEW TRAIL
- VIEW
- ABAND. DRILL SITE
- ACTIVE DRILL SITE
- SNOWMOBILE ROUTE
- PIPELINE (NO TRAIL)

OVERALL CONCEPT

1. NORTH OF CLEARWATER R. - PRIMARILY HIKING.
   SOUTH OF CLEARWATER R. - EQUESTRIAN/HIKING.
2. MAINTAIN REMOTENESS OF NORTHWEST AREA DUE TO EXTENSIVE AND EASILY DAMAGED WET AREAS.
3. MINIMAL FACILITIES - WILDERNESS EXPERIENCE.

ACCESS

1. CLOSE PUBLIC ROAD PAST SA2 - USE FOR WAGONS.
   REACH AGREEMENT WITH PRIVATE OWNERS FOR ACCESS FOR TRAILS T, I, G AND D OR CONSTRUCT ALTERNATES.
2. ELIMINATE OLD CUTLINES. BLOCK ENDS.

USAGE

1. EQUESTRIAN, HIKING, SKIING ALLOWED ON ALL TRAILS.
2. WAGON USE LIMITED TO MAJOR TRAILS D, G, H, J, N, I.
   IF REQ'D. - WIDEN R-K1 TO CREATE LOOP N-R-K1-I-G.
3. SNOWMOBILES CONFINED TO D,G,N,R,X,Y ROUTE TO TIMEU.

MISCELLANEOUS FACILITIES

1. PROVIDE WELLS AT SA1/SA2 AND JUNCTION Q/N.
2. PROVIDE DIRECTION SIGNS AT TRAIL HEADS AND JUNCTIONS.

NAMES

A	MS CONNECTOR	E	WOLF HIGHWAY
F	BEAVER TRAIL	L,M,I	WILFRED SCHULTE TRAIL
G	WAGON TRAIL	J,H	RIVER VALLEY TRAIL
N	NEW CACHE TRAIL	T	MIGRATION TRAIL
Q	MULE DEER TRAIL	R	MOOSE TRAIL
W	LOOKOUT LOOP		

Alberta
ENVIRONMENTAL PROTECTION

FORT ASSINIBOINE SANDHILLS WILDLAND PARK

TRAILS MASTER PLAN

0 0.5 1.0Km.

0 1/4 1/2Mi.

SCALE

N

North Environments Landscape Architects Ltd.
11419 126 St. Edmonton T5M 0R7
415 5780 Fax 415 5781
December 1998

time. This arrangement will be monitored, and if impacts from use become unacceptable, a more formal arrangement will be considered to contain impacts.

Athabasca Viewpoint is a smaller access/staging area off Secondary Highway #661 that provides access for hikers to a short trail system and scenic lookouts. It will be large enough to accommodate two pull-through camping units and four parked cars.

The intent of these staging areas is to provide a location from which park visitors can disperse for backcountry recreation. They are not intended to be used as campgrounds. Those who use the park for more than a day visit will be encouraged to use local auto-accessible campgrounds, such as the Holmes Crossing Recreation Area.

Installation of vault toilets will be considered at these staging areas. Natural Resources Service will look for assistance from park user groups for maintenance. Garbage receptacles will be installed in the staging areas.

The municipal road mentioned earlier is accessible by vehicles. In order to control vehicle access in the wildland park, Natural Resources Service proposes to install an unlocked gate on the road just past Central Staging Area. Permission from the M.D. of Woodlands has been granted, and approval from the affected landowner will be sought.

4.3.2 Trails

Objectives

- To develop a network of trails in the park suitable for equestrian use, hiking, cross-country skiing, and other non-motorized trail activities.

Management Actions

A trail plan has been prepared for the park, based on the following guidelines. See Trail Map for location of trails.

- The system will be built on existing trails as much as possible. Some may need to be widened to accommodate wagon use.
- The trails will be multi-use trails appropriate for equestrian use, hiking, and cross-country skiing.
- The trails will have a loop design to provide options and make them more interesting.
- The first priority is to develop designated main trails. Some smaller trails may not be designated or improved at this point, but they can still be used. Other trails will be closed because they do not provide loop options, or they disturb sensitive wet areas.
- Natural and cultural heritage points of interest along the trails will be marked by signs. If possible, trails will provide access to features such as viewpoints over the river valley.
- . Suitable additions to the trail system will be identified and developed over time, depending on demand and resources.
- Natural Resources staff will not groom ski trails in the park, but volunteers will be allowed to groom them.

Many of the trails have been given names. They will be signed at trailheads and junctions, using signing material that fits with the surroundings.

Once the aboriginal migration trail has been identified, it will be signed and maintained in a natural state, and used appropriately.

A ford will be constructed on Clearwater Creek on the Klondike Trail, just north of the park boundary. The ford will consist of placing gravel on the creek bed up to a depth of about two feet below the surface. The ford will be monitored annually, and more often if needed.

Some trails go through the private land accessed by the M.D. road. The landowner is willing to accommodate use of these trails at the current level of use. Natural Resources Service and the landowner will monitor the situation, and if it becomes a problem, will work together to address it.

4.3.3 Equestrian Use

Objectives

- To facilitate equestrian use in the park.

Management Actions

Equestrian users include commercial trail riders, recreational trail riders, and guides and outfitters.

Commercial trail riders who operate in the park will be required to purchase a Commercial Guiding Permit (S.44(1)(2) of the Provincial Parks Act – General Regulations). This permit can be obtained from the Conservation Officer, Natural Resources Service in Barrhead.

Commercial Trail Riding Operating Conditions apply to commercial trail riders in the park. (See Appendix B). It is expected that recreational trail riders will comply with these conditions as well, particularly those applying to random camping and to care of horses.

Guides and outfitters will also be required to purchase a Commercial Guiding Permit to operate in the park, in addition to the Guides Permit.

Wellsites for watering horses will be provided at the two main staging areas, and along New Cache Trail (Trail "N" on Trail Map). The wellsite along New Cache Trail will have a small staging area to accommodate trail rider groups. Use of natural water bodies for watering horses is discouraged.

Disposal of horse manure could become a problem if use increases. This will be monitored, and action taken if the amount increases beyond acceptable levels.

4.3.4 Snowmobile Use

Objectives

- To provide a snowmobile route through the park which provides access to the hamlet of Fort Assiniboine.

Management Actions

The Access and Protection Plan allows for one designated snowmobile route through the park. The intent of this trail is to join snowmobile trails in the Timeu OHV Recreation Area with the Village of Fort Assiniboine.

The proposed snowmobile route through the park will follow, from south to north, Trails D, G, N, and R. It will cross the M.D. road around Clearwater Creek, and then follow Trail Y and X to Secondary Highway 661.

This designated trail is the only opportunity for snowmobiling in the park. Off-trail snowmobiling is not allowed. The park will be monitored for compliance with trail use guidelines, and the opportunity may be discontinued if compliance is a problem.

4.3.5 Camping

Objectives

- To offer opportunities for backcountry random camping

Management Actions

Random backcountry camping and associated fires are allowed in the park. There are no designated campsites, and no auto access camping.

Currently there is no demand to provide minimum facilities for backcountry campsites. This could be considered depending on future demands.

4.3.6 Special Events

A special event within a wildland provincial park is any activity carried out within the park that, by the nature or scope of the event, requires special provisions to be made.

Objectives

- To continue to support appropriate special events in the park

Management Actions
Special event permits need to be obtained by the event organizers to allow an event to take place in the park. These permits will be approved on the basis of:
- the event is compatible with the objectives of the park; and
- no damage to significant or special features of the park, or impairment of its aesthetic values, is incurred.

Permits can be obtained from the Conservation Officer at Natural Resources Service, Barrhead.

Special events such as the annual MS Trail Ride will continue to be encouraged in the park. The park will work with the organizers to facilitate these events.

4.3.7 Hunting

Objectives
- To provide opportunities for hunting in the park as long as it is sustainable.

Management Actions
Hunting is allowed in the park, but can only be conducted on foot or by horse. All hunting regulations apply in the park.

4.3.8 Other Recreational Activities

Objectives
- To provide opportunities for other recreational activities which are compatible with the objectives and intent of the park.

- To monitor for activities which do not presently occur in the park, but which could take place in the future.

Management Actions
Natural Resources Service will monitor the park for other recreational uses and their impacts. Mountain biking is a potential use, but this activity would not be allowed to interfere with the original intent of the park to provide backcountry equestrian and hiking opportunities.

4.4 Tourism

Objectives
- To provide opportunities for tourists to experience the backcountry in the Athabasca Sandhills area.
- To support the local tourism groups

Management Actions
The Fort Assiniboine Community Tourism group (FACT) is composed of local tour operators, some of whom use the park for tourism activities. Natural Resources Service will work with this group to enhance opportunities for backcountry tourism in the park.

Natural Resources Service will work with local people and tourism groups such as FACT to promote the park and the other protected areas in the Athabasca River Sandhills area. One possibility is to distribute park brochures at tourist stops, such as the Vega Ferry, the Fort Assiniboine Museum, the Friendship Drop-in Center, and the Center of Alberta.

The possibility of placing signs at centers such as Fort Assiniboine and Barrhead will be investigated. The purpose of these signs would be to inform travelers about the park.

Natural Resources Service will investigate the potential for campgrounds to be developed on private lands adjacent to the park. These would provide overnight facilities for visitors who want vehicle access camping.

The Klondike Trail is a historic feature that could attract people to the area who are interested in Canadian history. The Klondike Trail will be included in promotional material about the park.

4.5 Monitoring

Monitoring is a systematic way of detecting and measuring changes that, over the long term, may be counter to the objectives of the park. These changes can act as flags for management action.

A monitoring program will be instituted that will detect these changes. Below is a list of factors identified in this plan that will be included in a monitoring program.

Natural Resource Factors
- sand dunes for evidence of destabilization
- erosion along stream beds, particularly at stream crossings
- evidence of non-native plant invasions
- presence/health of rare and noteworthy vegetation species
- state of old-growth forests
- state of grasslands, including encroachment of shrubs and aspen
- state of wetlands
- natural movement of surface and groundwater through the park
- level of mistletoe invasion of pine forests

Social Resource Factors
- compliance of snowmobilers to regulations
- conditions of staging areas from equestrian use, for instance build-up of manure, trampling, damage to trees

This list may be adapted as Natural Resources Service learns more about the ecology of the park and about visitor use patterns.

The monitoring program will identify the indicators to be monitored and the frequency of monitoring. Specific indicators will need to be selected to monitor some factors, such as the old growth forests, the grasslands and the wetlands.

5. Dispositions

The only dispositions in the park are oil and gas dispositions, and trapping. The park is not part of a Forest Management Area (FMA), and there will be no commercial logging within it.

5.1 Oil and Gas Dispositions

Oil and gas dispositions existed in the park area before its establishment, but were not developed. Some of these dispositions are now being considered for development.

Management Guidelines
Existing oil and gas commitments prior to park designation will be honoured.

Petroleum and natural gas leases sold after park designation will have a no surface access addenda as a condition of sale.

Metallic, industrial, coal and aggregate exploration or development will not be allowed in the park, as per legislation (Provincial Park Act amendment 1996)

The development of oil and gas leases will need to address the impacts of development on the park environment. This planning will be done in cooperation with Natural Resources Service, and will need the approval of Natural Resources Service before development begins. Natural Resources Service may deem that the plans require public consultation and review prior to development of a lease.

In general, development will be done with the least environmental impact. Sensitive areas may require more detailed assessment and mitigation of impact. For instance, corridors through wetlands will be constructed to preserve the drainage patterns.

Geophysical exploration (seismic activity) that is not connected to existing commitments will not be permitted in the park. Conditions for geophysical exploration of existing commitments will include, but not be limited to, the following:
- Seismic lines must be hand cut with a maximum width of 1.5 meters.
- Existing linear disturbances will be used whenever possible.
- In environmentally sensitive areas, exploration will be allowed to proceed only if no surface disturbance will occur.

Industrial access will be planned so as not to impact either significant natural features or recreational potential of the park. Whenever possible, existing access corridors will be used

rather than creating new corridors. New corridors will be planned so that they may be useable as recreation trails.

Industrial access for petroleum and natural gas exploration and development is restricted to winter access only.

Support vehicles will be allowed only on approved, designated trails.

All surface disturbances will be completely rehabilitated to conform to the surrounding landscapes.

5.2 Trapping

The park is within a Registered Fur Management Area (RFMA). Currently one trapline exists in the park, and will continue. The RFMA holder is allowed to use a snowmobile to work his trapline.

6. Regional Integration

One of the principles of ecosystem management of protected areas is that they do not exist in isolation from the surrounding lands. What happens on lands around a protected area may have an impact inside it. In turn, management practices within the park may affect adjacent lands.

Athabasca Sandhills Wildland Provincial Park recognizes this principle, and the importance of regional cooperation in making decisions about land use. It seeks to be a good neighbor with adjacent land managers and owners, and with the local community.

6.1 Adjacent Land Use

The park is bounded on the north by Secondary Highway 661. Beyond this road to the north is the Timeu OHV Recreation Area. The eastern boundary of the wildland park is the Athabasca River, except for a portion of private land. The south and west boundaries abut a mixture of private and forested crown land.

6.2 Regional Cooperation

Fort Assiniboine Wildland Provincial Park was established as one of five areas to accommodate recreational use and protection of the area. The success of meeting the objectives of this park depends in part on the success of the other four areas, and in particular the success of the Timeu area. Natural Resources Service will work with the managers and owners of adjacent land to coordinate management of the park.

Natural Resources Service will work towards continuing good relations with the private landowners whose land abuts the park boundary. The park will keep them informed of management decisions that may affect them, and would appreciate landowners doing the same.

Natural Resources Service will continue to work with the OHV Association to educate OHV users about the regulations in the park, and direct them to the Timeu OHV Recreation Area.

Local agencies, such as the M.D of Woodlands, and the Fort Assiniboine Community Tourism group have a stake in the well-being of the park. Natural Resources Service will work with these and other local groups to maintain the park for the future.

7. Implementation of Plan

7.1 Projects Identified in Plan

The following table is a list of projects identified in the plan, and a proposed target date for completing each one. Meeting the target date will depend on available funding.

Projects	Target Date
Prepare Fire Management Plan with Land and Forest Service	Winter 2000
Prepare monitoring program	Winter 1999
Implement Trail Plan	
- Develop high priority trails	Summer 1998
- Develop staging area SA2	Summer 1998
- Close eliminated trails	Summer 1998
- Develop other staging areas	Summer 1999
- Develop low priority trails	Summer 1999
- Sign trails	Spring 1999
- Construct ford	Summer 1999
- Plan interpretative trails	Summer 1999
Bird/wildlife inventory	Summer 1999
Historical assessment done	Summer 1999
Information :	
- produce/distribute park brochure	Winter 1999
- Install display at Vega Ferry	Winter 1999

7.2 Plan Review

This plan will be reviewed not later than ten years from its date of approval. A review can be initiated sooner if warranted.

Natural Resources Service will initiate the review of this plan. Members of the local groups and agencies who helped in its preparation, as will the general public, will be asked to participate in the review.

The review will focus on the objectives and management actions outlined in this plan. Issues that arise subsequent to the approval of this plan will also be addressed. Other sections may need updating to reflect changing situations.

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Appendix A

Plants found in Fort Assiniboine Sandhills Wildland Provincial Park

This list of vascular plants was compiled from Timoney and Robinson 1997.

Trees	
Alaska birch	*Betula neoalaskana*
White birch	*Betula papyrifera*
Tamarack	*Larix laricina*
White Spruce	*Picea glauca*
Black spruce	*Picea mariana*
Jack pine	*Pinus banksiana*
Balsam poplar	*Populus balsamifera*
Aspen	*Populus tremuloides*
Tall Shrubs	
Green alder	*Alnus crispa*
River alder	*Alnus incanaa*
Saskatoon berry	*Amelanchier alnifolia.*
Pin cherry	*Prunus pensylvanica*
Choke cherry	*Prunus virginiana*
Little-tree willow	*Salix arbusculoides*
Beaked willow	*Salix bebbiana.*
Pussy willow	*Salix discolor.*
Yellow willow	*Salix lutea*
Basket willow	*Salix petiolaris*
Autumn willow	*Salix serissima*
High-bush cranberry	*Viburnum trilobum*
Medium Shrubs	
Swamp birch	*Betula pumila*
Red osier dogwood	*Cornus stolonifera*
Beaked hazelnut	*Corylus cornuta*
Silverberry	*Eleagnus commutata*
Labrador tea	*Ledum* groenlandicum Oeder
Twining honeysuckle	*Lonicera dioica* var. *glaucescens*
Bracted honeysuckle	*Lonicera involucrata*
Common juniper	*Juniperis communis*
Northern gooseberry	*Ribes oxyacanthoides.*
Northern black currant	Ribes hudsonianum
Briskly black currant	Ribes lacustre
Wild red currant	*Ribes triste*
Prickly rose	Rosa acicularis.
Common wild rose	*Rosa woodsii*
Wild red raspberry	*Rubus idaeus*
Hoary willowf	*Salix candida*
Drummond's willow	*Salix drummondiana*
Sandbar willow	*Salix exigua*
Shining willow	*Salix lucida*
Yellow willow	*Salix lutea*
Myrtle leaved willow	*Salix myrtillifolia*
Bog willow	*Salix pedicellaris*
Mackenzie's willow	*Salix prolixa*
Mountain willow	*Salix pseudomonticola*
Canada buffaloberry	*Sheperdia canadensis*
Snowberry	*Symporicarpos albus*
Common blueberry	*Vaccinium myrtilloides*
Low bush cranberry	*Viburnum edule.*
Low Shrubs	
Bog rosemary	*Andromeda poliflia*
Common bearberry	*Arctostaphylos uva-ursi*
Small bog cranberry	*Oxycoccos microcarpus*
Dwarf raspberry	*Rubus acaulis*
Dewberry	*Rubus pubescens*
Bog cranberry	*Vaccinium vitis-idaea*
Ferns	
Virginia grape fern	*Botrychium virginianum*
Horsetails	
Common horsetail	*Equisetum arvense*
Swamp horsetail	*Equisetum fluviatile*
Scouring rush	*Equisitum hyemale*
Meadow horsetail	*Equisitum pratense*
Dwarf scouring rush	*Equisetum scirpoides*
Woodland horsetail	*Equisetum sylvaticum*
Variegated scouring rush	*Equisetum variegatum*
Apline rush	*Juncus alpinoarticulatus*
Wire rush	*Juncus balticus*
Slender rush	*Juncus tenuis*
Club Mosses	
Stiff club-moss	*Lycopodium annotinum*
Ground cedar	*Lycopodium complanatum*
Ground pine	*Lycopodium obscurum*
	Selaginella rupestris
Grasses, Sedges and Rushes	
Wheatgrass	*Agropyron cristatum*
Quack grass	*Agropyron repens*
Western wheat grass	*Agropyron smithii*
Slender wheat grass	*Agropyron trachycaulum*
Redtop	*Agrostis stolonifera*
Fringed brome	*Bromus ciliatus*
Northern awnless brome	*Bromus inermis*
Marsh reed grass	*Calamagrostis canadensis*
Northern reed grass	*Calamagrostis inexpansa*
Purple reed grass	*Calamagrostis purpurascens*
Narrow reed grass	*Calamagrostis stricta*
Sand grass	*Calamovilfa longifolia*

Water sedge	*Carex aquatilis*
Awned sedge	*Carex atherodes*
Golden sedge	*Carex aurea*
Hair-like sedge	*Carex cf. capillaris*
Prostrate sedge	*Carex chordorrhiza*
Beautiful sedge	*Carex concinna*
Two-stamened sedge	*Carex diandra*
Two-seeded sedge	*Carex disperma*
	Carex eburnea
	Carex filifolia
Northern bog sedge	*Carex gynocrates*
Lakeshore sedge	*Carex lacustris*
Woolly sedge	*Carex lanuginosa*
Hairy-fruited sedge	*Carex lasiocarpa*
Bristle-stalked sedge	*Carex leptalea*
Mud sedge	*Cares limosa*
Norway sedge	*Carex norvegica*
Bog sedge	*Carex praegracilis*
Graceful sedge	*Carex praegracilis*
Prairie sedge	*Carex prairea*
Richardson's sedge	*Carex richardsonii*
Ross' sedge	*Carex rossii*
Sartwell's sedge	*Carex sartwellii*
Hay sedge	*Carex siccata*
	Carex stenophylla
Beaked sedge	*Carex utriculata*
Sheathed sedge	*Carex vaginata.*
Drooping wood reed	*Cinna latifolia*
Timber oat grass	*Danthonia intermedia*
Tufted hair grass	*Deschampsia cespitosa*
Canada wild rye	*Elymus canadensis*
Hairy wild rye	*Elymus innovatus*
Slender cotton-grass	*Eriophorum gracile*
Tall cotton-grass	*Eriophorum polystachion*
Thin-leaved cotton-grass	*Eriophorum viridi-carinatum*
Rocky Mountain fescue	*Destuca saximontana*
Manna grass	*Glyceria sp.*
Fowl manna grass	*Gkyceria striata*
Bog muhly	*Muhlenbergia glomerata*
Rough-leaved rice grass	*Oryzopsis asperifolia*
Northern rice grass	*Oryzopsis pungens*
Bluegrass	*Poa interior*
Kentucky bluegrass	*Poa pratensis*
Fowl bluegrass	*Poa palustris*
False melic	*Schizachne purpurascens*
Small-fruited bulrush	*Scirpus microcarpus*
Sand dropseed	*Sporobolus cryptandrus*
Needle grass	*Stipa curtiseta*
Seaside arrow-grass	*Triglochin maritima*
Slender arrow-grass	*Triglochin palustris*
Water Plants	
Bulb-bearing water hemlock	*Cicuta bulbifera*
Small yellow pond-lily	*Nuphar variegatum*
Various-leaved pondweed	*Potamogeton gramineus*
Slender bur-reed	*Sparganium cf. minimum*
Common cattail	*Typha latifolia*
Forbs	
Common yarrow	*Achillea millefolium .*
Many-flowered yarrow	*Achillea sibirica*
Baneberry	*Actaea rubra.*
Fairy candelabra	*Androsace septentrionalis*
Canada anemone	*Anemone canadensis*
Long-fruited anemone	*Anemone cylindrica*
Cut-leaved anemone	*Anemone multifida*
Prairie crocus	*Anemone patens*
Tall anemone	*Anemone riparia*
Rosy pussytoes	*Antennaria rosa*
Spreading dogbane	*Apocunum androsaemifolium*
Blue columbine	*Aquilegia brevistyla*
Tower mustard	*Arabis glabra*
Lyre-leaved rock cress	*Arabis lyrata*
Wild sarsparilla	*Aralia nudicaulis*
Plains wormwood	*Artemisia campestris*
Low milkweed	*Asclepias ovalifolia*
Marsh aster	*Aster borealis*
Rayless aster	*Aster brachyactis*
	Aster cf.x maccallae
Lindley's aster	*Aster ciliolatus.*
Showy aster	*Aster conspicuus.*
Western willow aster	*Aster hesperius.*
Smooth aster	*Aster laevis var. geyri.*
	Aster modestus
Purple-stemmed aster	*Aster puniceus.*
Indian milk vetch	*Astragalus aboriginum*
American milk vetch	*Astragalus. americanus.*
Purple milk vetch	*Astragalus dasyglottis*
Ascending purple milk vetch	*Astragalus striatus*
	Astragalus sp.
Yellow marsh marigold	*Caltha palustris*
Common harebell	*Campanula rotundiflolia*
Narrow-leaved goosefoot	*Chenopodium loeptophyllm*
Enchanter's nightshade	*Circaea alpina*
Canada thistle	*Cirsium arvense*
Bindweed	*Convolvulus septentrionalis*
Pale coral-root	*Corallorhiza trifida*
Bunchberry	*Cornus canadensis L.*
Annual hawksbeard	*Crpis tectorum*
Tall larkspur	*Delphinium glacum*
Fairy bells	*Disporum trachycarpum*
Round-leaved sundew	*Drosera rotundifolia*
Fireweed	*Epilobium angustifolium*
Smooth fleabane	*Erigeron glabellus*

Philadelphia fleabane	*Erigeron philadelphicus*
	Erigeron sp.
Wild strawberry	*Fragaria verginiana*
Woodland strawberry	*Fragaria vesca*
Northern bedstraw	*Galium boreale*
Labrador bedstraw	*Galium labradoricum*
Small bedstraw	*Galim trifidum*
Sweet-scented bedstraw	*Galium triflorum*
Northern gentian	*Gentianella amarella*
Northern bastard toad-flax	*Geocaulon lividum*
Yellow avens	*Geum allepicum*
Lesser rattlesnake plaintain	*Goodyera repens*
Tall white orchid	*Habenaria dilatata*
Northern green orchid	*Habenaria hyperborea*
Blunt-leaves orchid	*Habenaria obtusata*
Narrow-leaved hawkweed	*Hieracium umbellatum*
Touch-me-not	*Impatiens sp.*
Creamy peavine	*Lathyrus ochroleucus*
Purple peavine	*Lathyrus venosus*
Western wood lily	*Lilium philadelphicum*
Twin flower	*Linnaea borealis*
Wild lily-of-the-valley	*Maianthemum canadense*
White adder's mouth	*Malaxis monophylla*
Alfalfa	*Medicago sativa*
Cow-wheat	*Melampyrum lineare*
White sweet clover	*Melilotus alba*
Wild mint	*Menta arvensis*
Buckbean	*Menyanthes trifoliata*
Lungwort	*Mertensia paniculata*
Bishop's cap	*Mitella nuda*
One-flowered wintergreen	*Moneses unifolra*
Yellow evening primose	*Oenothera biennis*
One-sided wintergreen	*Orthilia secunda*
Reflexed locoweed	*Oxytropis deflexa*
Early yellow locoweed	*Oxytropis sericea*
Grass-of-Parnassus	*Parnassia palustris*
Swamp lousewort	*Pedicularis parviflora*
Palm-leaved coltsfoot	*Petasites palmatus*
Arrow-leaved coltsfoot	*Petasites sagitatus*
Vine-leaved coltsfoot	*Petasites vitafolius*
Wild buckweed	*Polygonum convolvulus*
Rough cinquefoil	*Potentilla norvegica*
Marsh cinquefoil	*Potentilla palustris*
Common pink wintergreen	*Pyrola asarifolia*
Green wintergreen	*Pyrola chlorantha*
Macoun's buttercup	*Ranunculus macounii*
Balsam groundsel	*Senecio pauperculus*
Moss campion	*Silene drummondii*
Blue-eyed grass	*Sisyrinchium montanum*
Water parsnip	*Sium Suave*

Star-flowered Solomon's seal	*Smilacina stellata*
Three-leaved Solomon's seal	*Smilacina trifolia*
Canada goldenrod	*Solidago canadensis*
	Solidago gigantea
Flat-topped goldenrod	*Solidago graminifolia*
	Solidago missouriensis
Perennial sow thistle	*Sonchus arvensis*
Smooth perennial sow thistle	*Sonchus uliginosus*
Hooded ladies tresses	*Spiranthes romanzoffiana*
Long-stalked chickweed	*Stellaria longipes*
Twisted stalk	*Streptopus sp.*
Common dandelion	*Taraxacum officinale*
Meadow rue	*Thalictrum sp.*
Veiny meadow rue	*Thalictrum venulosum*
Sticky false asphodel	*Tofieldia glutinosa*
Small bladderwort	*Utricularia minor*
Wild vetch	*Vicia americana*
Canada wood violet	*Viola canadensis*
Early blue violet	*Viola adunca*
	Viola sp.
Mosses	
Tufted moss	*Aulacomnium palustre*
	Barbula convoluta
	Barbula fallax
	Brachythecium albicans
	Brachythecium campestre
	Brachytheciummildeanum
	Brachythecium rutabulum
Golden ragged moss	*Brachythecium salebrosum*
	Brachythecium starkei
	Brachythecium sp.
	Bryoerythophyllum recurvirostrum
	Bryum lonchocaulon
Tall clustered threadmoss	*Bryum pseudotriquetrum*
	Bryum sp.
Straw-colored water moss	*Calliergon stramineum.*
Three-ranked feather moss	*Calliergon trifarium*
	Calliergonella cuspidata
False willow moss	*Campylium hispidulum*
	Campylium polygamum
	Campylium radicale
Yellow star moss	*Campylium stellatum*
Golf club moss	*Catoscopium nigritum*
Purple horn-toothed moss	*Ceratodon purpureus*
Iceland moss	*Cetraria islandica*
	Cetraria platyphylla
Common tree moss	*Climacium dendroides*

Hooked moss	*Cratoneuron commutatum var. falcatum*
Silky fork moss	*Dicranella cf. Heteromalla*
	Dicranella sp.
	Dicranella varia
Sharp-leaved cushion moss	*Dicranum acutifolium*
Whip fork moss	*Dicranum flagellare*
Fragile cushion moss	*Dicranum fragilifolium*
Curly heron's bill moss	*Dicranum fuscescens*
Electric eels moss	*Dicranum polysetum*
Broom moss	*Dicranum scoparium*
Wavy dicranum	*Dicranum undulatum*
	Didymodon acutus
Rigid screw moss	*Didymodon rigidulus*
Slender-stemmed hair moss	*Ditrichum flexicaule*
Common hook moss	*Drepanocladus aduncus*
Red hook moss	*Drepanocladus revolvens*
Sickle moss	*Drepanocladus uncinatus*
Stick hook moss	*Drepanocladus vernicosus*
	Entodon schleicheri
Common beaked moss	*Eurhynchium pulchellum*
Spruce moss	*Evernia mesomorpha*
	Haplocladium microphyllum
Blandow's feather moss	*Helodium blandowii*
Stair-step moss	*Hylocomium splendens*
Clay pigtail moss	*Hypnum lindbergii*
Stump pigtail moss	*Hypnum pallescens*
Long-necked bryum moss	*Leptobryum pyriforme*
Three-angled thread moss	*Meesia triquetra*
Capillary thread moss	*Meesia uliginosa*
Mountain curved-back moss	*Oncophorum wahlenbergii*
Blunt-leaved bristle moss	*Orthotrichum obtusifolium.*
Showy bristle moss	*Orthotrichum speciosum*
Woodsy leafy moss	*Plagiomnium cuspidatum*
Drummond's leafy moss	*Plagiomnium drummondii*
Marsh magnificent moss	*Plagiomnium ellipticum*
Common leafy moss	*Plagiomnium medium*
	Platydictya jungermannioides
	Platydictya repens
Big red stem moss	*Pleurozium schreberi*
Copper wire moss	*Pohlia nutans*
Pale-leaved thread moss	*Pohlia wahlenbergii*
	Pohlia sp.
Juniper hair-cap moss	*Polytrichum juniperinum*
Awned hair cap moss	*Polytrichum piliferum*
Knight's plum moss	*Ptilium crist-castrensis*
Stocking moss	*Pylaisiella polyantha*
Felt round moss	*Rhizomnium pseudopunctatum*
	Rhytiadelphus triquetrus

Pipecleaner moss	*Rhytidium rugosum*
Sausage moss	*Scorpidium scorpioides*
Poor fen peat moss	*Shpagnum angustifolium*
Rusty peat moss	*Sphagnum fuscum*
Midway peat moss	*Sphagnum magellanicum*
Acute-leaved peat moss	*Sphaghum nemoreum*
Wide-tongued peat moss	*Sphagnum russowii*
Thin-leaved peat moss	*Sphagnum teres*
Warnstorf's peat moss	*Sphagnum warnstorfii*
Flagon-fruited splachnum	*Splachnum ampullaceum*
Common four-tooth moss	*Tetraphis pellucida*
Brown tapering splachnum moss	*Tetraplodon mnioides*
Wiry fern moss	Thuidium abietinum
Hook-leaf fern moss	Thuidium recognitum
	Timmia megapolitana
Golden fuzzy fen moss	Tomenthypnum nitens
Fragile screw moss	Tortella fragilis
Hairy screw moss	Tortula ruralis
Liverworts	
	Aneura pinguis
	Blepharostoma trichophyllum
Snake liverwort	*Conocephalum conicum*
Jameson's liverwort	*Jamesoniella autumnalis*
Little hands liverwort	*Lepidozia reptans*
Green-tongue liverwort	*Marchantia polymorpha*
	Pellia sp.
Naugehyde liverwort	*Ptilidium pulcherrimum*
	Scapania sp.
Lichens	
Speckled horsehair lichen	*Bryoria fuscescens*
	Bryoria glabra
	Bryoria sp.
	Candelariella vitellina.
Crusted orange lichen	*Caloplaca cerina*
	Caloplaca holocarpa
Tiny toothpick	*Cladina coniocraea*
Scarlet toothpick cladonia	*Cladonia bacillaris*
Stump cladonia	*Cladonia botrytes*
	Cladonia chlorantha
False pixie-cup	*Cladonia chlorophaea*
Red pixie-cup	*Cladonia coccifera*
Horn cladonia	*Cladonia cornuta*
Shrub funnel lichen	*Cladonia crispata*
	Cladonia cristatella
	Cladonia fimbriata
	Cladonia furcata
Brown-foot cladonia	*Cladonia gracilis*
	Cladonia mitis
Sieve cup	*Cladonia multiformis*
Black-foot cladonia	*Cladonia phyllophora*

	Cladonia pocillum
Brown pixie-cup	*Cladonia pyxidata*
	Cladonia rangiferina
Tall toothpick cladonia	*Cladonia subulata*
	Cladonia sp.
	Diploschistes scruposus
Green speckleback	*Flavopunctelia flaventior*
Monk's hood lichen	*Hypogymnia physodes*
Floury starburst lichen	*Imshaugia aleurites*
Rim lichen sp.	*Lecanora sp.*
	Lecidea sp
	Leptogium saturninum
	Melanelia albertana
Lustrous brown lichen	*Melanelia exasperatula*
	Melanelia olivacea
	Melanelia subaurifera
	Melanelia subolivacea
	Ochrolechia arborea
Waxpaper lichen	*Parmelia sulcata*
Green starburst lichen	*Parmeliopsis ambigua*
Grey starburst lichen	*Parmeliopsis hyperopta*
Freckle pelt	*Peltigera aphthosa*
Dog pelt	*Peltigera canina*
	Peltigera collina
	Peltigera didactyla var. extenuata
Temporary pelt	*Peltigera didactyla*
	Peltigera elisabethae

	Peltigera evansiana
	Peltigera horizontalis
Apple pelt	*Peltigera malacea*
	Peltigera neckeri
Frog pelt	*Peltigera neopolydactyla*
	Peltigera polydactylas
Granulated shadow	*Phaeophyscia orbicularis*
Hooded rosette	*Physica adscendens*
Grey-eyed rosette	*Physica aipolia*
	Physica dimidiata
	Physica millegrana
Leaf lichen	*Physconia detersa*
	Physconia enteroxantha
Punctured gristle lichen	*Ramalina dilacerata*
Dusty gristle lichen	*Ramalina pollinaria*
Fringed ruffle lichen	*Tuckermannopsis americana*
Pitted beard lichen	*Usnea cavernosa*
Sugary Beard	*Usnea hirta*
Scruffy beard	*Usnea scabrata*
	Usnea subfloridana
Powdered sunshine	*Vulpicida pinastri*
	Stereocaulon sp.
	Usnea sp.

Appendix B

COMMERCIAL TRAIL RIDING CONDITIONS FOR OPERATIONS IN PROTECTED AREAS

These conditions apply to Commercial Trail Riding permit holders whose operations take place entirely or partially in Protected Areas (Provincial Parks, Wildland Parks and Provincial Recreation Areas).

GENERAL CONDITIONS

1. This permit is subject to the ongoing fulfillment of, and compliance with:
   a) the terms, conditions and provisions set forth, herein, and
   b) the terms and conditions of or in the Provincial Parks Act and Regulation or successor legislation.

2. Permits are issued after April 1st and will expire no later than December 1. The operator must provide his service to the satisfaction of the Area District Manager, Natural Resource Service. Failure to do so may result in the cancellation of the Commercial Guiding and Instruction Permit.

3. Permits must be kept at main camps at all times while operating in a Protected Area and presented if requested.

4. Application, Annual Operating Plan and Commercial Trail Riding Trip summary are to be submitted to the manager of the protected area two weeks prior to the commencement of operations. First time applications shall include a map of the trails and campsite locations requested.

5. Approval either through the permit renewal process or in writing from a Park Ranger will be required to:
   a) establish a campsite or add/upgrade facilities at an existing campsite
   b) establish a trail or any major re-routing of an existing trail

Note: Campsites must be located at least 1 kilometer from a designated staging area.

6. The permit is valid for the campsites/trails specified and the operations described and approved on your permit. Natural Resources Service must be notified at least 5 days in advance to request approval for any planned changes to the existing permit. If a campsite is occupied by the general public when an operator arrives to set up camp, a temporary camp may be set up in the same valley until the designated camp is vacated.

7. Use of any government facilities not included in the permit must be approved by the Natural Resources Service manager of that area.

8. Parking of motorized vehicles and stock trailers in Protected Areas must be done at a designated

parking area.

9. If, in the opinion of the Province, temporary closure of an area or trail is advisable for any reason including wind, flood, fire hazard, pollution, or public safety, then the operator shall promptly co-operate in the closure of the area/trail. The Province shall not be liable for any damage, expense or loss of the Operator as a result of the closure.

10. The carrying and discharge of firearms is normally prohibited in Wildland Parks outside of dates of open hunting seasons for the area. If you are authorized to carry/discharge a firearm, an authorization clause will be included on the back of your permit. Under this authorization, if the permittee discharges a firearm within the Wildland Park and is not legally hunting under the Wildlife Act, the permittee is required to notify Environmental Protection staff as to why the action was required. This approval does not relieve the permittee of any charges that could be laid under the Wildlife Act.

11. If clients intend to fish while in the park, please ensure that they are familiar with the regulations in the Alberta guide to Sport Fishing, closures, catch and release procedures, size restrictions, and catch limits.

12. Trapping is permitted in the Park. Please do not disturb traps.

13. Permittees using trails identified on their permit are responsible for trail maintenance or repair/reclamation that becomes necessary as a result of his or their operations. The operator shall maintain all utilized trails to the degree necessary to ensure reasonable safety to the user and protection of the environment.

14. Group size should normally not exceed the total of 15 persons, i.e. 13 clients and two guides. It is recognized that occasionally this number will be exceeded due to additional staff requirements or large group bookings. The NRS Management Area Office must be contacted in advance by the operator in order to obtain approval for larger groups. This may be done prior to the operating season if numbers are known at that time.

15. No operator will have exclusive rights to any trails.

CAMP CONDITIONS

1. All sites are to be kept neat, orderly and sanitary at all times.

2. Campsites, toilets and corrals, unless otherwise approved by Natural Resources Service staff are not to be located within 30 metres (100 feet) of a trail, water course or body of water.

3. All primitive toilet pits, firepits, waste water pits must be filled with soil and levelled.

4. All camp food for human consumption and horse feed, excluding hay, is to be kept in a manner that it is inaccessible to wildlife. All wet slops, food wastes, can, bottles, and other garbage must be stored in sealed plastic bags so that it cannot be accessed by wildlife. Garbage must be removed from camp at least once a week.

5. No cutting or girdling of live vegetation is permitted. Use of deadwood for campfires should be

kept to a minimum in order to reduce impact to the surrounding area.

6. Fires are not to be left unattended. Fires in pits or barrels must not be used for burning food wastes, paper products, or other garbage.

7. If at any time a conflict arises near or within a camp with respect to bears or other wildlife, the camp may have to be moved or closed down. All incidents related to bear conflicts or other problem wildlife must be reported to Natural Resources Service as soon as possible.

8. No more than two access trails between the camp and the main trail are permitted.

9. An inspection of camps will be done occasionally by Natural Resources Service with the operator. The operator may be requested to reclaim sites that are used on a rotating basis. Only an approved native seed mix can be used for replanting.

10. The permittee shall take all precautions to prevent deleterious material such as fuel from entering any watercourse.

11. No operator will have exclusive right to any main camp.

12. All debris, personal equipment, facilities/improvements, excess horse feed, etc., must be removed when the campsite is vacated. Equipment/food storage caches are not permitted unless approved by Natural Resources Service. Bear poles may be used to hang food. A camp is considered to be abandoned if after 72 hours, the camp has been left vacant or unattended. A letter of authority is required to leave camps abandoned for longer than 72 hours.

13. The permittee will carry sufficient fire fighting equipment and take the necessary precautions to prevent fires from occurring as a result of their operations. (Suggested minimum fire fighting equipment is an axe, shovel and pail)

LIVESTOCK MANAGEMENT

1. Only weed-free feed is to be used.

2. Grazing of horses near camps will only be permitted in assigned areas. Areas where horses are to be grazed must be identified on application forms and approved by the Department. Horses must be tied up at camps or contained in a corral while at camp.

3. Acceptable types of livestock containment at camps include corrals of rope or an approved material, electric fencing, hitching rails. Use of rails for corrals must have authorization from Natural Resources Service. No spiking of trees is permitted.

4. Scatter manure at camps (approved random camps) to help hasten decomposition and minimize visual impact.

BACKCOUNTRY ETHICS AND ETIQUETTE

1. Trails are used by other recreational users. Other users are to be treated courteously and with respect. Off-highway vehicles are not permitted on any trails within the Wildland Park,

2. The principle of "minimum impact" use will be practiced, including the packing out of all garbage and refuse.

3. Do not shortcut switchbacks. Remain on established and existing trails as much as possible.

4. Ride single file on trails in open areas to prevent new trails from developing on sensitive areas.

5. Never feed wildlife, or collect plants, rocks or fossils

6. To assist in preventing forest fires, the permittee should discourage smoking while on the trail.

7. It is recommended and encouraged that solid human waste be collected in portapoties or sealed in plastic bags and removed to a proper disposal site.

8. Please do not tie horses to live trees if it can be avoided.

Appendix C

Permitted Activities in Athabasca Sandhills Protected Areas

	Holmes Crossing Ecological Reserve	Holmes Crossing Forest Land Use Zone	Fort Assiniboine Wildland Park	Vega Natural Area	Timeu Off-Highway Vehicle Recreation Area
Hunting	Not permitted	Permitted	Permitted	Permitted	Permitted
Trapping	Not permitted	Permitted	Permitted	Permitted	Permitted
Snowmobiling	Not permitted	Permitted on designated trails	Permitted on designated trail only	Not permitted	Permitted
ATV Use	Not permitted	Not permitted	Not permitted	Not permitted	Permitted
Hiking	Permitted	Permitted	Permitted	Permitted	Permitted
Equestrian Use	Not permitted	Permitted	Permitted	Not permitted	Permitted
Camping	Not permitted	Permitted in staging area/campgrounds only	Random camping* permitted.Car camping not permitted in staging area	Not permitted	Staging area camping and random camping permitted.
Geophysical Exploration	Not permitted	Permitted	Allowed only for existing commitments	Not permitted	Permitted
Oil/Gas Development	Not permitted	Permitted	Allowed only on leases that pre-exist park establishment	Not permitted	Permitted
Logging	Not permitted	Permitted	Not permitted	Not permitted	Permitted

*Random Camping - an undesignated area used for camping other than the staging area. In the wildland park random camping must be at least one kilometer from the staging area. The intent is to disperse the impacts of camping, and to provide the opportunity for primitive camping experiences.